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PROGRESS OF AVIATION MEDICINE IN THE ROYAL AIR FORCE AND ITS APPLICATION TO THE PROBLEMS OF CIVIL AVIATION*

BY

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In choosing a subject for this lecture in memory of the immortal William Harvey, physician and biologist, I feel that it would be appropriate, so far as the Royal Air Force is concerned, to give you a brief survey of the progress made in the physiology of aviation during the war and its application to the problems of civil aviation. Though aeronautics were unknown in Harvey's day, he was deeply interested in circulatory and respiratory phenomena, and these are much involved in certain important flying problems, particularly those of high acceleration and altitude. Harvey would have rejoiced to see how the experimental method has been applied to the biology of flying and would have marvelled at the progress made in this branch of medical science, also at the way that contemporaries and the public have accepted it and recognized its importance. Although Harvey discovered the circulation of the blood in arteries and veins, his conception of the circulation of the blood to the lungs was very wide of the mark: he thought that the inspired air cooled the blood and so prevented it from boiling at ground level. We know now that the blood actually boils at altitudes of over 60,000 ft. (18,280 metres) if compression is not employed.

Harvey applied the experimental method to gain knowledge for the benefit of humanity. I propose, therefore, to try to indicate to you some of the blessings to man that have accrued from aviation medicine researches in the Royal Air Force during the war and how many of these can be applied to the physiological and psychological problems of civil aviation.

Before the war the control of civil aviation, including licensing for civil flying, was vested in the Secretary of State for Air, and a special department existed at the Medical Headquarters in the Air Ministry to deal with the medical aspects, particularly the assessment of fitness to fly. After the outbreak of war this work still continued to be done by the Air Ministry, but on a diminished scale, as civilian flying was limited to testing and delivering aircraft and to manning a mere handful of passenger aircraft. Very little research in aviation medicine was done specifically on behalf of civilian flying, as practically all new developments were confined to Service types of aircraft. A few *ad hoc* problems were dealt with as they arose, and were common to civil and R.A.F. transport aircraft alike.

With the return of peace and the formation of a Ministry of Civil Aviation the relation of Service to civil aviation medicine has altered somewhat, the position being as follows.

Present Position of Medicine as Applied to Civil Aviation

The Ministry of Civil Aviation does not possess a medical branch of its own, but relies on the extensive knowledge and experience of aviation medicine available at the Air Ministry. A close liaison is maintained between the Ministry of Civil Aviation and the Air Ministry Medical Directorate, which continues to advise generally in this country on aviation medicine matters. The Ministry of Health, however, is responsible for the sanitary control of civilian aircraft and passengers arriving at or leaving airfields in England or Wales: the Scottish Department of Health is similarly concerned in Scotland. The Royal Air Force Medical Branch has behind it the results of many years of experience and practical observations on medical aviation problems, and has a highly skilled staff of specialists to give appropriate advice and investigate problems as they arise. In addition, the valuable services of the Flying Personnel Research Committee† and its subcommittees are available to the Ministry of Civil Aviation. This committee reports direct to the Secretary of State for Air. It consists of a body of eminent scientists representing physiology, psychology, neuro-psychiatry, neurology, hearing, vision, and statistics; it advises on researches into the medical aspects of all matters affecting personnel which might conduce to safety and efficiency in flying, including problems associated with the scientific selection of flying personnel. The Director-General of Medical Services of the Royal Air Force is an *ex-officio* member of the committee. There are executive members of Air Staff representing operations, training, and research, a medical and an executive member for the Fleet Air Arm of the Navy, and a scientific officer (non-medical) of the Ministry of Civil Aviation. Other medical and non-medical individuals representing the practical interests involved are co-opted as required. The researches carried out under the aegis of this committee are done mainly at the Institute of Aviation Medicine at Farnborough, the Psychological Department of Cambridge University, and in the field by the Flying Personnel Medical Officers of the various flying Commands.

It would not be economical to duplicate these facilities purely to give civil aviation medical independence. Moreover, even if this were considered desirable, it would be some time before a new and separate staff of medical men could attain the knowledge necessary, unless either appropriate personnel were seconded from the Air Force or retired officers were employed. It would be an asset, however, if there were a Medical Adviser in the Ministry of Civil Aviation to make liaison with the medical authorities and scientists engaged in aviation medicine matters—civil, Service, and international—and to help keep the human factor in flying in proper perspective and abreast of progress of the machine. Otherwise there will be a tendency to revert to the pre-war attitude, when man's requirements were a secondary consideration to those of the aircraft. To obtain the best results the machine and its equipment must be designed and built to fit man.

I propose now to review a few of the more pressing problems of aviation medicine that confronted the Royal Air Force during the war. To enable aircrew to handle powerful aircraft of all types it was first necessary to learn how to select the best human material by physiological and psychological

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† The composition of the committee is as follows: Sir Edward Mellanby (chairman), Prof. F. C. Bartlett (psychology), Dr. E. A. Carmichael (neurology), Mr. C. S. Hallpike (hearing), Prof. A. Bradford Hill (statistics), Dr. B. H. C. Matthews (physiology), Sir John Parsons (vision), Air Vice-Marshal Sir Charles Symonds (neuro-psychiatry), Surg. Capt. R. C. May (Fleet Air Arm), Air Cdre. T. McClurkin (Chief Executive Officer), and Air Marshal Sir Harold Whittingham (Director-General of Medical Services, R.A.F.).

methods; then to buttress their natural attributes by providing mechanical aids to enable them to withstand the abnormal conditions encountered at higher altitudes, in all climates, by day and night, as well as in manœuvres of combat involving high acceleration, and to ensure, so far as was possible, survival in emergency—that is, during and after baling out, ditching, or crashing.

Selection

The general medical examination for fitness for flying, including special tests for cardiovascular stability and neuromuscular and respiratory efficiency, introduced in 1919 and called the "Flack Physical Efficiency Tests," has proved its value. This examination is devised to ensure that those who pass are alert in body and in mind and have accurate vision, good muscle tone, quick reaction time, and a good sense of balance. These tests do not predict the individual's aptitude to learn to fly; they do, however, materially aid in the assessment of general physical fitness to withstand the stress of flying.

During the war additional tests were introduced to select personnel for particular aircrew duties; the chief of these were used to help assess power of co-ordination, cardiovascular stability, tolerance for rarefied atmospheres, night visual capacity, and hearing efficiency in aircraft.

(i) *The sensorimotor test* was devised to judge deftness of hands and feet and co-ordination between the limbs, eyes, and ears. Extensive investigations have validated this apparatus as an effective means of picking out those individuals who would fail to learn to fly on account of poor co-ordination. Approximately 25% of those who fail to learn to fly do so because of being too heavy with their hands and feet, while the other 75% fail chiefly for temperamental reasons. Unfortunately, no satisfactory test for temperamental fitness for flying has proved valid as a sole arbiter in the selection of aircrew on entry, except in the case of severe predisposition to nervous breakdown.

(ii) *The cardiovascular stability test* is done with a tilt-table to detect those who have a low diastolic blood pressure which fails to rise on change from the horizontal to the vertical position, indicating instability for aerobatics.

(iii) *The high-altitude test* is carried out in a decompression chamber, where rarefied atmospheres are simulated up to 40,000 ft. (12,180 metres), or more if necessary, at the rate of climb of a modern aircraft. This test is used to eliminate those who are liable to suffer from decompression sickness or "bends," due to the nitrogen dissolved in the body fluids coming out of solution under greatly lowered atmospheric pressure more rapidly than it can be disposed of by the lungs. It has been found that about 25% of all aircrew tested suffer from "bends" when submitted to this standard test, whereas only 10% of young fit pilots so suffer.

(iv) *The rotating hexagon test*, intended to provide a visual task simulating that performed by a night fighter pilot, has proved to be only a rough guide to the assessment of night visual capacity, owing to uncontrollable factors which affect night vision in degrees varying with the individual. The test has therefore been used only to prevent grossly night-blind individuals from being allocated to night-flying duties: this means the elimination of about 3% of candidates for flying. As regards the remainder, it is considered that the best way to approach the problem is to give them night-vision training, to teach them how to look and to perceive, and to refer to an ophthalmologist for special examination, including a scotometry test, anyone whose night vision appears to be below normal during this training.

(v) *The hearing efficiency test* is performed with a gramophone audiometer, and is designed to measure ability to receive normal speech signals in both ears as transmitted through telephones in the presence of a background of intense aircraft engine noise. This was introduced because the whisper test at 20 ft. (6.1 metres) cannot be standardized, owing to variables such as the tester's voice and noise background. It is also uncertain whether the whisper test passes individuals who would be inefficient in hearing telecommunication messages in the presence of aircraft noise. In addition to the gramophone audiometer, a pure-tone audiometer is used to test pure-tone reception at 5 frequencies (4,000, 2,000, 1,000, 500, and 250 cycles per second in either ear) and at a subjective level of 20 decibels above the normal threshold. Candidates with a threshold hearing loss greater than 20 decibels at any of the frequencies are rejected. These are good tests, but have the defect of needing special apparatus which requires to be kept standardized.

The Royal Air Force, with its vast number of aircrew, opportunities for carefully controlled observations, and accurate personal records, has been in an ideal position to assess the value of various selection tests. Such Service experience has been used in formulating suitable tests for the licensing of civilian pilots, of whom there are two classes. The private pilot must hold a Class A licence, and pilots and other members of aircrew of public transport or those employed as test pilots must possess a Class B licence, which entails passing a higher medical standard. As civil flying necessitates air travel over many countries, an international standard of medical examination for fitness to fly has been laid down by agreement of the appropriate authorities of the various countries concerned. Until January, 1946, the authority for this was the International Convention for Aerial Navigation (ICAN), with its head office in Paris. Now it is the Provisional International Civil Aviation Organization (PICAO), with headquarters in Quebec. The standard medical examination set for Class B licences is in some respects even higher than that for R.A.F. aircrew, particularly as regards physical fitness and hearing: good physical fitness is essential to help ensure against the fatigue of long flights, and perfect hearing is very important in connexion with modern radio aids to navigation for blind flying at night and in fogs. All aircrew of civilian airlines must be up to the PICAO medical standards for their particular duties (pilot, wireless operator, engineer, etc.), though extra tests and safeguards may be introduced if any company thinks fit. When stratosphere liners become the vogue a decompression test, on the lines of that in use in the R.A.F., will doubtless be included in the routine tests laid down by PICAO, in case mechanical failure or explosive decompression did occur.

There are important branches of aviation other than aircrew that have benefited from the Flying Personnel Research Committee's researches into the problems of selection of personnel. For example, psychological tests were devised to select Fighter Controllers, whose duties included direction of fighters in interception tactics and on offensive sorties, also of patrols on convoy duty. These tests proved successful in picking candidates with the intellectual capacities required, and demonstrated a strong positive relationship between test scores and operational efficiency. The adoption of these tests resulted in a reduction in training wastage of Fighter Controllers. Somewhat similar methods were applied with success to Filterers, who co-ordinated information received from a number of radar stations simultaneously to help plot the position and movements of aircraft. The results of these investigations and a study of Service Air Traffic Control Officers proved of value in determining the standard of candidates to be selected for the very important job of Air Traffic Controller in civil aviation. Thus recommendations were made regarding the qualities required in a Control Officer, also regarding promising sources of recruitment and selection procedure. Recently these tests have been modified and added to with a view to selecting for civil aviation the best pilots for safe flying. Here two tests deserve mention—namely, the *controlled approach* (which is an extension of the Cambridge cockpit test), to pick out those who tend to under- or over-shoot in their landing approach, and the *grid location test* (in which small objects on a grid-scale have to be accurately located), to select those with deft touch, imperturbability in face of delay and error, and the ability to learn the sequence of controlled movements rapidly.

The wide Service experience gained with the decompression test to assess fitness for high-altitude flying has also proved of value in helping to formulate instructions for employees engaged in testing pressure cabins on the ground in aircraft works, to exclude those not suited for such pressure changes, and to ensure a safe rate of pressure change for a normal individual. It has been recommended, therefore, that all intended employees on this work should be medically examined to exclude disease of the alimentary, circulatory, or respiratory system, including upper respiratory tract infections; also that they should be instructed how to ventilate their middle ears during ascent and descent, and, where possible, should be given a decompression-chamber test. The rate of pressure increase should not be greater than 1/2 lb./sq. in. (0.035 kg./sq. cm.) per minute for inexperienced operatives, and gradually increased up to 2 or even 3 lb./sq. in. (0.14 kg.–0.21 kg./sq. cm.) as experience is gained; decrease in pressure can be at the rate of 5 lb./sq. in. (0.35 kg./sq. cm.) per minute for the healthy.

It is convenient now to consider the problems of high-altitude flying, particularly those of adequate oxygen supply, decompression sickness, and explosive decompression.

Altitude Flying

In this country at the outbreak of war neither those engaged in Service nor in civil flying were really oxygen-minded. Moreover, the continuous-flow system of oxygen supply then in use allowed two-thirds of the oxygen to go to waste. The Medical Branch was therefore faced with two urgent problems: first, to make every member of aircrew oxygen-minded, and, second, to devise an oxygen supply system and mask that would prevent oxygen waste, give the maximum of comfort to the user, and be reliable in the severest cold when sitting or moving about the aircraft or on baling out. To make aircrew oxygen-minded, demonstrations of the ill effects of oxygen want were given in low-pressure chambers in which all flying altitudes and current rates of ascent and descent could be simulated. As regards improvement of oxygen supply, an economizer and mask were quickly designed and developed to prevent oxygen going to waste during expiration, and to be foolproof against stoppage of flow should the breathing of the wearer be minimal, as during shock or unconsciousness. This new system more than doubled the operational range of aircraft from the oxygen point of view.

Several improved types of mask were subsequently developed as the result of operational experience, so that the latest mask (Type H) is practically ideal, combining the qualities of comfort, smallness, lightness, and perfect fit even during strenuous aerobatics.

To assess the relative merits of oxygen masks and systems under various conditions an anoxia meter was designed and produced to estimate the amount of oxygen in the blood for any length of time without puncture of an artery, as had to be done formerly. The apparatus is simply clamped lightly to the ear and the oxygen content of the blood is measured by means of two photo-electric cells.

This provision of good oxygen equipment was vain unless aircrews and passengers co-operated by using it to the greatest advantage. All aircrew and passengers therefore had to be instructed regarding the value of oxygen in maintaining normal cerebration, vision, and hearing at altitudes over 10,000 ft. (3,045 metres), as well as its role in delaying the onset of fatigue and the ill effects of cold. In addition, a mask-leak tester was developed and introduced to check the fit of oxygen masks before all flights in which oxygen was likely to be used.

Other oxygen equipment developments were mobile decompression chambers for testing and instructional purposes, a plant for separating oxygen from the air during flight, a portable oxygen set (weighing 5¼ lb. (2.38 kg.) and containing 10 minutes' supply of oxygen) to enable aircrew to move about away from their station at oxygen-requiring heights, and a very light bale-out oxygen bottle (weighing 3¼ lb. (1.47 kg.) and containing 10 minutes' supply) fitted into the parachute pack as a stand-by for those who might have to bale out at altitudes above 30,000 ft. (9,140 metres): this emergency oxygen supply is permanently connected with the oxygen mask and can be turned on immediately by pulling a release handle on the side of the parachute pack.

These Air Force oxygen researches, developments, and experiences have been a boon to civil aviation, and have provided all the data required to fix the necessary rates of flow of oxygen at various altitudes for crew and passengers, including invalids. The new civil aviation mask for passengers was designed and developed at the R.A.F. Institute of Aviation Medicine, and it is a direct descendant of Type H, modified to meet civilian needs. It is extremely light (weighing only 1½ oz.: 42.5 g.), is a good fit (being made in four sizes), and is of aesthetic appearance: it had also to be of the cheapest possible construction compatible with proper function, as the policy is to make these masks an individual issue of the "throw away when finished with" type, owing to difficulty of sterilization. The portable oxygen set is being adopted for use by stewards and passengers to enable them to move about in aircraft at oxygen-requiring heights, also as a stand-by for invalids at even lower altitudes: in this case the bottle is slung over the arm of the passenger's seat. Some of the Service decompression chambers will probably be utilized in the near future by civil aviation organizations to train members of aircrew, especially with the advent of stratosphere flying.

Stratosphere flying at altitudes above 37,000 ft. (11,270 metres) brought two further problems—namely, how to prevent the occurrence of decompression sickness or "bends," and the best means of compressing the oxygen breathed so as to maintain the normal sea-level amount in the blood. The obvious answer to both was to supply the right amount of pressure. Exactly how this could best be done required much

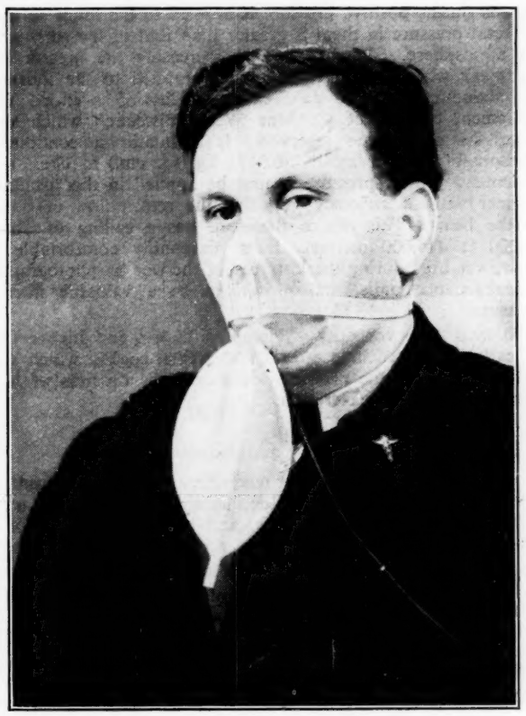

FIG. 1.—Oxygen mask designed and developed at the R.A.F. Institute of Aviation Medicine for use in civil aviation.

research. First, pressure suits were developed, and it was in one of these, filled with oxygen under a pressure of 2½ lb. per sq. in. (0.176 kg. per sq. cm.) that Fl. Lieut. M. J. Adams in 1937 attained the altitude of 54,000 ft. (16,450 metres): such suits were clumsy to wear and greatly hampered movements, so they quickly fell into disuse. The next step was the development of pressurized cabins to give full freedom of movement with adequate comfort and warmth. Researches in pressure-cabin design were based on applying a pressure of 7¼ lb. per sq. in. (0.51 kg. per sq. cm.), so that at an altitude of 44,000 ft. (13,200 metres) the pressure within the cabin would be equivalent to that of the atmosphere at 18,000 ft. (5,480 metres). The question arose of the effects of sudden decompression on the occupants if the cabin pressure were lost owing to mechanical failure or to puncture by shellfire or to a port blowing out. From the results of experiments on animals it was assumed that the sudden change of pressure from the equivalent of the atmospheric pressure at 18,000 ft. inside the cabin to that of 44,000 feet outside would cause such violent expansion of the lungs, stomach, and intestines that serious bodily damage or death would result. This was disproved in the Physiology Laboratory at Farnborough in 1942. The experiment has been repeated hundreds of times since, and it is quite clear that a fit man suffers little or no ill effects from such explosive decompression, provided that at the time of the explosion he is breathing oxygen, as he should be for an atmospheric pressure equivalent to that of an altitude of 18,000 feet.

These researches have provided the knowledge necessary for civilian pressurized aircraft for altitudes envisaged at present. In fact, the present aim is for an internal pressure of 6½ lb. per sq. in. (0.46 kg. per sq. cm.), so that at 20,000 ft. (6,100 metres) the cabin pressure would be equivalent to that of the

atmosphere at 8,000 ft. (2,400 metres), and oxygen would not normally be needed except to turn on in emergency.

While awaiting the production of pressurized-cabin aircraft it was necessary, in answer to the appearance of the German pressurized JU86, to devise some temporary measure to permit operations between 38,000 and 44,000 ft. (11,570 and 13,200 metres). A pressure breathing equipment was therefore developed in conjunction with the Royal Canadian Air Force. By this means positive pressure is applied to the lungs so that the total pressure in them is greater than that of the surrounding atmosphere. This is done by increasing the pressure in the mask while a counter-pressure is applied to the thoracic and abdominal walls to make expiration less of an effort. The equipment consists of a "Mae West waistcoat," which also serves as an oxygen reservoir. It maintains a continuous pressure of 1/4 lb./sq. in. (0.0175 kg./sq. cm.) to chest and abdomen: greater pressure cannot be applied in this localized manner without seriously impeding the return flow of blood to the heart. This device therefore has a ceiling of about 46,000 ft. (15,000 metres). It is reasonably comfortable to wear, was used during the last year of the war by photographic reconnaissance units, and proved to be a valuable interim measure.

Aircraft were not only attaining to higher and higher altitudes but were reaching greater and greater speeds, which kept ever to the fore the problems of the effects on man of high acceleration and deceleration.

Acceleration and Deceleration

During the war extensive researches were carried out on problems of acceleration and deceleration in relation to aerobatics, crash landings, ditchings, and baling out and ejection from aircraft.

As aerobatics play little part in ordinary civilian aviation only brief reference will be made to this problem. Blacking-out during a tight turn or loop at high centrifugal acceleration leads to momentary loss of control of the aircraft by the pilot, maybe during a critical manœuvre. It was therefore necessary, during the early stages of the war, to introduce anti-measures without delay and with the minimum of interference with the pilot and the structure of the aircraft, as every man and every machine were needed in the air. Researches had already shown that blacking-out was due to the blood, under the force of high centrifugal acceleration, being drained to the lower part of the body, particularly the legs, so stopping the circulation of the blood to the eyes and brain, and that this usually occurred in the normal sitting position after exposure to a force of about 5 "g" for 4 seconds. It was found that abdominal belts alone did not prevent blacking-out, but interfered with the return of blood from the lower part of the body to the heart when the force of "g" was released, and so did more harm than good. The immediate answer to the problem was the introduction of the crouch position, which raised the individual's blacking-out threshold by about 2 "g": thus the average pilot can withstand up to 7 to 7½ "g" for 4 seconds, which was sufficient at that time. To achieve this crouch posture all that was necessary as regards structural alteration to aircraft was to raise the rudder-bar position 6 in. (15 cm.) by fitting a simple stirrup with a heel support to prevent the foot slipping during tight turns.

Further developments were hydrostatic and pneumatic anti-"g" garments designed to equalize automatically the internal pressure built up in the body fluids by the accelerating force, so preventing the blood from pooling in the lower part of the body. During the past three years great progress has been made, by close liaison between U.S.A. and British workers, in the development of a pneumatic suit of light type capable of being put on or taken off almost as easily as an ordinary pair of trousers. The latest suit weighs only 3 lb. (1.36 kg.), can be worn either as underclothing or over slacks, and can be put on within two minutes and taken off in half that time. These suits apply pressure as required by means of inflatable bladders to the lower abdomen, thighs, and calves, and so prevent pooling of blood in the lower half of the body. The air pressure is derived from a source within the aircraft, such as the instrument pump, and, by means of a regulating valve, is increased or decreased proportionately to the force of "g" applied. The valve can be set to cut in at a predetermined force of "g," as it is uncomfortable to have the pressure functioning for low forces of "g," such as are encountered when flying in bumpy weather and while taking certain evasive action. This type of suit raises the threshold for blacking-out by at least 2 "g," and in addition, by ensuring good circulation of blood to the head, lessens fatigue and helps to maintain good reaction time even in long and arduous flights. It is unlikely, however, that such suits will be required by pilots of civil air lines, except possibly to prevent fatigue on very long journeys.

There are problems of linear acceleration, however, that are applicable to civil flying, particularly those connected with crash landings, ditchings, and baling out and ejection from aircraft.

Crash Landing.—In crash landings various injuries, lethal and otherwise, are apt to occur as the result of the body being carried forward with the momentum of the aircraft and striking against some hard object or bending on itself to such a degree as to cause a wedge fracture of the spine. The commonest injuries are fractures of the skull or simply bruises and lacerations of the scalp and face, and fractures of the bones of the lower limbs and of the spine. The wearing of a safety belt low down near the pelvis is unsatisfactory, as it allows of so much forward flexion that fracture is apt to occur in the dorso-lumbar region, with serious immediate and after results: whereas a safety harness which supports the shoulders allows only slight forward flexion of the spine, and if fracture does occur it is in the upper dorsal region and the prognosis is therefore more favourable. Compression fractures of the spine are not so common in aircraft crashes as in parachute descents.

During the past three years extensive study has been made of the forces which the human frame can withstand without injury or without injury sufficient to endanger human life, with the aim of collaborating with aircraft makers in the stressing of airframes and the design of safety devices to reduce crash injuries to the minimum. The extent of injury sustained during aircraft crashes depends on the magnitude of the force applied, the area and site over which the forces are spread, the duration of the forces, and the relative movement between supported and unsupported parts of the body. For example, if the skull receives the first impact the area of contact is usually small owing to the curve of the skull, so that the pressure per square inch is high. The skull is strong, but the deflection which it can withstand without fracture is small: if fractured, the chances of survival are much lower than for fractures of other bones. The mortality rate for fracture of the skull in flying accidents is 94%. If the back and buttocks receive the first impact the area of contact is much larger, and appreciable deformation of tissues may result. Injuries to aircrew and passengers during crashes can be reduced by supporting the body over as large an area as possible, and by preventing the skull from hitting unyielding objects of small size. A posture facing backwards therefore gives better protection from serious injuries than one facing forwards, whether supported by harness or not. Harness gives relatively poor protection against injury, as the area of the body covered is small compared with support of the whole back by the seat. From the physiological aspect, the ideal posture during crashing or ditching is to lie or crouch with arms and legs flexed, the back and head fully supported, facing towards the rear of the fuselage. These postures reduce the effects of vertical deceleration on the spine, and are the basis of crouch positions adopted with success in various types of R.A.F. aircraft. A new safety-type harness has recently been developed to withstand the stresses liable to occur under existing conditions. A survey is being made of the important aircraft types, including jet-propelled machines, to find the maximum forward deceleration which can be withstood, and the anchorages of seats are being reviewed. The immediate aim is to produce a safety harness and seat which will withstand 25 "g."

A simple protective measure for passenger aircraft would be to place all seats facing to the rear instead of to the front; then, in the event of a forced landing, the passengers should be instructed to lean back in a crouched position with the head pressed firmly against the soft back of the seat and protected by the hands clasped tightly round the back of the neck. Generally speaking, the passengers' view from an aircraft would not be materially affected by this back-facing arrangement of seats. A special safety cell has been designed for crashes, but to carry these would occupy valuable space and unnecessarily increase the pay-load, for the padded seat reversed as suggested functions as a safety-cell.

Baling Out and Parachute Descents.—A considerable amount of research has been done to assess the decelerating forces involved when parachutes open at various altitudes and speeds: the higher the altitude and speed the greater is this force. The decelerating force applied to the parachute harness attached to a man of about 10 st. (63.5 kg.) in weight, at the moment of opening of the canopy, at altitudes up to 25,000 ft. (7,620 metres) is usually less than

25 "g," and the standard parachute with its rigging is capable of withstanding this degree of stress: the harness is stressed to withstand over 40 "g." This decelerating force acts for only a second or so—the greater the force the shorter the duration—so that blacking-out rarely occurs unless the parachutist is anoxic at the time, as well he may be. Experiments with dummy men fitted with accelerometers indicate that forces up to 30 "g" occur at altitudes of 35,000 to 40,000 ft. (10,660 to 12,180 metres) if the parachute is opened almost immediately after baling out. Such decelerating forces may seriously damage the parachute and its rigging. It is essential at these higher altitudes, therefore, for the user to allow the rate of fall to slow down to terminal velocity before pulling the rip-cord: this takes about 12 seconds.

It is convenient to consider here the danger of unconsciousness and even death from anoxia resulting from baling out in the stratosphere. Members of the staff of the R.A.F. Institute of Aviation Medicine took part in a number of experiments to find out how long a man could live at altitudes varying between 44,000 and 25,000 ft. (13,200 and 7,620 metres) during parachute descent, even though unconscious. These experiments were done in the laboratory, the subject being suspended in the air by the standard parachute harness. In this way, by simulating the atmospheric oxygen conditions from 40,000 ft. (12,180 metres) down by the use of nitrogen-air mixture, at the rate of descent of an open standard parachute, it was found that man could remain unconscious and yet live up to a period of 7½ minutes. This is not adequate to ensure a safe descent, as it would take 7½ minutes to reach 20,000 ft. (6,100 metres) if baling out took place at 35,000 ft. (10,660 metres). Moreover, the unconscious parachutist would become limp and the head would fall forward and so be liable to cause respiratory embarrassment; while the cold is intense (−55° C.) at these altitudes and would materially reduce the chances of survival. A quicker descent could be made by doing a delayed drop from 35,000 to 20,000 ft. (10,660 to 6,100 metres), which would take 1½ minutes; by this time the individual might be so anoxic as to fail to pull the rip-cord. For this reason the emergency bale-out oxygen set was introduced, and has added greatly to the confidence of those flying at higher altitudes.

An R.A.F. medical officer, an expert parachutist, was installed at the Airborne Forces establishment in this country when the training of air-borne troops was first taken seriously in 1941, and remained there throughout the war. His duties were to advise on parachuting from a medical aspect, and, for this purpose, to make liaison with the Army Airborne Forces and the R.A.F. Institute of Aviation Medicine. Researches he undertook show that liability to injury on landing by parachute varies with age, weight, force of wind, and type of terrain. Statistics revealed that injuries were more frequent in those over 25 years of age than in younger persons; that the injury rate rose rapidly in those over 12 st. (76.2 kg.) in weight; and that the stronger the wind the greater was the risk of injury from wrong stance on landing. The commonest parts to be injured during training jumps were the legs (64% of those injured) and the head (24% of cases). The incidence of injuries during training was initially 4% of jumps, but, subsequent to improved attachment of parachute harness and landing stance, as suggested by this parachutist medical officer, it was reduced to 0.5% of jumps. In addition, a considerable amount of research has been done with different kinds of parachute to ascertain the most foolproof type, as regards both certainty of opening and the minimizing of the final deceleration on touching down. For this purpose visits have been paid to the parachute-training establishments in the United States of America and in Canada, also in Germany.

Critical analysis of rates of survival after baling out from multi-seated aircraft has given valuable information regarding difficulties of escape, such as the angle of the aircraft, the force of "g" resulting from spinning, jamming of hatches, and temporary amnesia. The findings stress the necessity for aircraft to be designed so that all occupants can leave within two seconds of the order to abandon aircraft. In this connexion anthropometrical research has given valuable information to aircraft designers regarding the size and shape of exits necessary to prevent fouling or injury.

All this information is applicable to civil aviation, for, when stratosphere flying becomes a commonplace, passengers and crew will very likely have to be provided with parachutes for use in emergency even if it becomes possible in future to eject the cabin complete with occupants.

Ejection.—As the result of a fatality in January, 1944, when a pilot tried to escape from a jet-propelled aircraft which was out of control, it became evident that the force of the slipstream in aircraft of very high speed is so great that the unprotected human body cannot withstand it for more than a fraction of a second, else limbs are evulsed against the machine. The problems involved were whether quick ejection of the man plus his seat would avoid this evulsion, and whether man could withstand the high force of positive "g" necessary to eject him clear of the tail of the rapidly moving aircraft.

It was first necessary to ascertain what was the maximum force that can be applied vertically to the spine through the seat without injuring the spinal column, spinal cord, skull, or brain. The Martin-Baker test rig, at an angle of 30° off the vertical, proved best for this purpose. It was found that a man could tolerate in this way up to 20 "g" for a period of a tenth of a second, provided he was well strapped in with safety harness and that there was an appropriate device to prevent his head flexing forcibly and

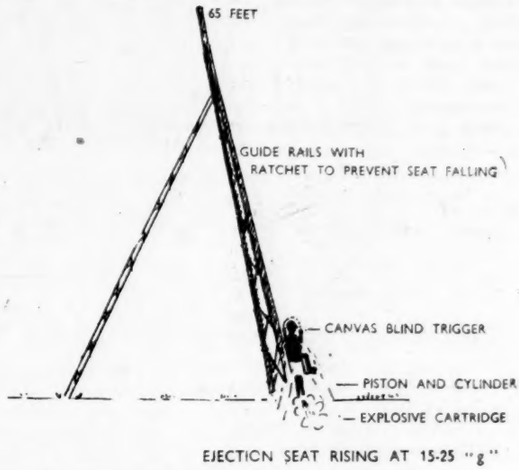
65 FEET
GUIDE RAILS WITH RATCHET TO PREVENT SEAT FALLING
CANVAS BLIND TRIGGER
PISTON AND CYLINDER
EXPLOSIVE CARTRIDGE
EJECTION SEAT RISING AT 15-25 "g"

FIG. 2.—Diagram to show how a man, strapped down with safety harness and provided with a canvas hood device to activate explosive ejection as from an aircraft, can tolerate a force up to 20 "g" applied vertically through the spine for 1/10 second. (The Martin-Baker test rig.)

acutely as the force of "g" was applied. Unless the head is protected it will fall violently forward on the chest, owing to the centre of gravity of the head being in front of the line of thrust of the spine. Trials with dummies in aircraft have shown that it is necessary to arrange for a 40-ft. (12.2-metre) ejection, with an ejection stroke lasting for one-tenth of a second at between 15 and 25 "g" upwards through the seat. This is attained by means of an explosive charge under the seat; the charge is activated by the pilot pulling a roller-blind affair of heavy canvas over his head by means of two rubber handles. When the handles reach the level of the diaphragm the pull activates the cartridge, and the resulting ejection with its high force of "g" makes the hands pull the protecting hood tightly down over the head. In addition to holding the head in position to avoid injury, the hood is intended to protect the eyes and prevent the oxygen mask being torn off by the force of speed.

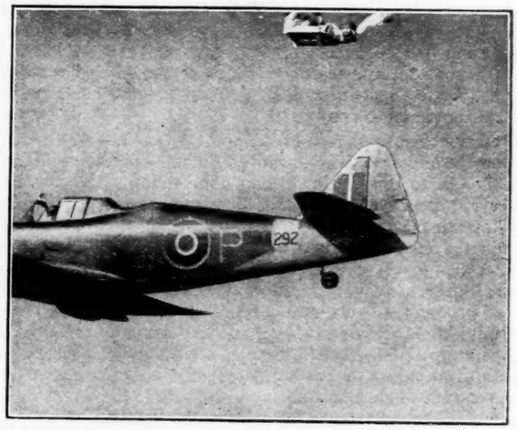

FIG. 3.—Ejection from aircraft in flight of a dummy man complete with seat as a result of a 40-ft.-per-second explosive charge. The parachute, which operates automatically, is just opening. (Crown copyright photograph of official test done on Oct. 5, 1945.)

It is envisaged that civilian flying in the near future will be in very fast aircraft travelling in the stratosphere, and that arrangements will have to be made for the whole cockpit or cabin to be ejected in emergency. The detached cabin will require to be fitted with suitable parachutes to land it intact or to retard its speed so that

occupants can escape individually by parachute in the usual way at a convenient altitude.

This leads to a consideration of aircraft accidents in general, their causes and prevention.

Aircraft Accidents

It has often been stated that flying accidents are due to human error in at least 80% of cases, but this statement has never been validated: it can be assumed, however, that the human factor plays a very large part in the majority of air accidents. It is of prime importance, therefore, to eliminate from flying duties those who are accident-prone and to provide aids to increase safety in the air, particularly for blind flying, landings, and take-offs.

With these aims in view, researches were instituted to devise *tests to predict the accident-prone* individual. It was conceded that heavy-handed and leaden-footed individuals, or those visually defective owing to eye-muscle imbalance or gross night-blindness, were accident-prone as regards flying, and they are eliminated by appropriate tests on entry, as already indicated. There still remain a large group who are labelled temperamentally unsuitable to fly, and many of these are accident-prone. Attempts to predict these individuals by psychiatric and psychological methods have been disappointing, except in the case of the Cambridge cockpit test. In researches with this test, pilots were set a relatively complicated task analogous to flying an aircraft, and many aspects of their performance were scored and rated. It was found that those who sustained accidents or became casualties on operations had obtained high error scores in the test, and had been predicted unfavourably. The incidence of non-fatal accidents was highest in those who, though they obtained normal scores, had been rated unfavourably in one or more aspects. The rating was intended to indicate the stability and skill of the individual when obliged to carry out, for a relatively long time, a task in which he was unable to achieve a high degree of accuracy. Stability under stress is regarded as a more important attribute in avoiding accidents than the ability to learn the skill of flying.

Investigations have shown that *fatigue* is conducive to flying accidents, and a considerable amount of research has been and is still being done to assess the relative importance of the many factors involved in flying fatigue and the best means of overcoming or mitigating them. There are various causes of fatigue in aviation, such as the stress of taking-off with heavily laden machines or landing under adverse conditions and at high speed; the mental anxiety of night flying or flying through fog; the discomfort of a cramped and confined position; the effect of noise on the auditory sense; loss of vitality as the result of exposure to cold; and oxygen lack to the body cells when the supply is inadequate. As the cumulative effect of even small irritations is a potent cause of fatigue, there has been a constant endeavour to improve the design and fitting of all flying equipment so as to give the greatest efficiency with the maximum of comfort.

Researches into measures to abate these fatigue-producing factors have resulted in improved radio apparatus and direction finders to simplify night and blind flying without straining the eyes; improved cockpit and instrument lay-out, including dial markings and the best position for all controls so as to obtain the maximum human efficiency with the least fatigue; proper design of seats from an anthropometrical and physiological aspect, to avoid cramping and to lessen vibration; sound-proofing of cockpits and cabins to minimize engine noise; air-conditioning of cabins to maintain an agreeable temperature in all climates and at all altitudes; and the provision of an adequate oxygen supply, including design of mask to give maximum efficiency and comfort. The results of all this work have been passed on for use by civil aviation, including designers of aircraft, and it is hoped that the various improvements suggested will materialize in the new civilian aircraft now under construction and development.

Fatigue in aircrew has been shown to be usually of the skill variety, and results mainly from prolonged repetition of highly skilled performance. The individual concerned is often unaware of his condition and tends to blame the flying instruments for his mistakes. Researches have proved that this liability to make mistakes when fatigued can be countered if the individual has been instructed that fatigue is a normal sequence of long periods of concentrated mental or physical effort, and that his performance can be almost as effective as when fresh if he realizes he is open to errors and exercises special care, particularly towards the end of the task.

The "*beam approach*" may be cited as one example of aids to flying and the prevention of accidents in which medical research has played an important part. This is one of the blind-flying devices on which a pilot has to rely in homing at night or in bad day visibility—that is, at a time when he is fatigued and liable to make errors. In addition to the beam approach indicator, a pilot has ten instruments on his blind-flying panel which have to be read and their meaning fitted into one whole before he can make a safe landing under blind conditions. It is of the greatest importance, therefore, that all instruments should present their messages as simply and clearly as possible. The beam approach briefly consists of a radio beam which gives two types of clue to the pilot—one auditory, the other visual. At first these clues were wrongly presented. The auditory clue, which was Morse, did not use the letters that could be picked up with least error; and the visual clue, which consists of a small luminous plan of the aircraft and its relation to the beam, was confusing, as the pilot had to remember to reverse the signal for right and left turn when coming in to the airfield in the opposite direction to the normal approach. Pilots, especially when tired, found this confusing, and often made a wrong response which resulted in a landing accident. The logical visual presentation is that which necessitates the minimum of thought. As a result of these psychological researches, correct aural and visual clues were introduced. The application of this to civil aviation needs no stressing.

Intensive researches into the causes and prevention of flying accidents are being continued by the Air Ministry: every crash is thoroughly investigated. From a medical point of view, statistics are collected covering such data as the type of aircraft involved; estimated speed of impact; posture adopted by each occupant before the crash, whether standing, sitting, facing fore or aft; parts of the aircraft which caused injuries to occupants; sites and nature of injury in each case; and any precautions taken to prevent injury. Appropriate action is taken to correct any faults found either in the structure or design of aircraft or equipment, or in the crash position or the drill of the occupants. It is hoped that, as a result, the incidence of air accidents will become progressively less, and that in those that do occur the survival rate will be high.

Survival after Crashing or Baling Out

Researches in connexion with problems of survival after baling out or ditching in the sea have been carried out by members of the Institute of Aviation Medicine in European waters. Some of these problems were tackled and solved in conjunction with the Admiralty, such as the production of drinking-water from salt water, the provision of the best type of survival ration, and general measures to preserve life when cast away at sea.

The first problem tackled was the development, in 1942, of an *immersion suit* for pilots of aircraft in the catapult armed merchant ships operating with convoys in North Atlantic and Arctic waters. The catapulted aircraft could not land on these ships, and the pilots had to bale out into icy waters, so that a suit was needed to enable them to withstand the severe cold on immersion for at least half an hour before they could be picked up. A suit was produced that was comfortable at stand-by on the ship and yet watertight. Immersion trials of this garment were carried out in Icelandic waters by a member of the physiology team to enable it to be perfected. It was made of a light waterproof gaberdine which allows perspiration to take place through it, yet by virtue of its texture and the arrangement of its fibres holds back water applied to it in the form of rain or during immersion. This suit, modified to meet requirements, was adopted by the Fleet Air Arm. Following the success of this garment, a watertight suit was developed to protect crews of high-speed launches of the Air-Sea Rescue Service against wind and spray.

In 1945 a lighter, inflatable *suit to guard against exposure* was designed and developed for aircrew to don either just before baling out or ditching, should time permit, or after entering the dinghy. It is made of balloon fabric, has a double

lining for inflation purposes, and is quilted to loculate the air to ensure that there is always a layer of air even at points of pressure. It weighs only 2¾ lb. (1.25 kg.), and rolls up to form a stole for the "Mae West." There is a short tube at the neck for inflation by the mouth, and a hood to complete the protection. Even if it is not put on until the dinghy is boarded, it will protect the wearer against further loss of body heat despite wet clothing underneath.

Researches were also carried out with various *life-saving jackets* to assess their efficiency to prevent an injured or unconscious man from drowning. For this purpose a member of the physiology team was kept continuously anaesthetized while immersed in a swimming-bath wearing various types of life-saving jackets in turn, the body being pulled face down from time to time to see if it would right itself. Artificial waves were created to imitate rough water. Though the R.A.F. "Mae West" kept the nose and mouth of the unconscious individual clear of the water, it was improved for use in rough seas by a 2-lb. (0.9-kg.) lift in the back. A new jacket was therefore designed incorporating this and other improvements.

The immersion suit and the "Mae West" life-saving jacket, which are light and easily stowed, will be welcomed by civil air lines, particularly now that land planes are replacing flying boats on most, if not all, cross-sea and ocean flights.

Some Flying Problems

Time does not permit of more than passing mention of many other problems tackled, and solved, to improve man's efficiency in flying, whether in a Service or a civil capacity—for instance:

(i) The protection of vision against *sun and searchlight glare* by special glasses and other devices.

(ii) Means of obtaining and maintaining the *maximum night visual acuity*, by pre-adapting with red goggles, and using red or ultra-violet lighting reduced to the minimum to illuminate instruments and maps.

(iii) Improved design of *microphones* and *earphones* to increase acoustic reception and so lessen fatigue.

(iv) Design and development of *flying helmets* to give perfect fit with comfort even when worn for hours.

(v) Proof of the occurrence of *high-tone deafness* as the result of flying for 100 or more hours without ear protection in non-sound-proofed cabins.

(vi) Means of preventing and treating acute *otitic barotrauma* by *x* rays or gamma radiation.

(vii) Study of the causes of *dental pain at altitude* and its prevention by proper conservative dentistry, using cement of the correct *p*H and avoiding undue heat near the tooth pulp.

(viii) Study of *air-sickness* and its prevention, and discriminating between true air-sickness and emotional tension.

(ix) *Design of cockpits and seats* for comfort; removal of projections likely to cause injury; placing of all controls in the most favourable position. The problem is whether the controls most often used or those needed in emergency should have place of vantage.

(x) Simplification of *instrument dials* for ease of reading; grouping of instruments so as to cause the minimum of error and fatigue.

(xi) The *disinsectization of aircraft*, and the *control of mosquito* breeding by aerial spraying of D.D.T.

(xii) The *cooling of aircraft* on the ground in hot climates and protection of those servicing aircraft.

It is evident from the foregoing that the majority of aviation medicine researches carried out on behalf of Service flying have a direct or indirect bearing on civil aviation problems. For this reason, when considering the establishment of the new Institute of Aviation Medicine at Farnborough, it was decided to design, equip, and staff it to meet the requirements of civil aviation as well as of those of the Services—Royal Air Force, Fleet Air Arm, and airborne troops. Throughout the war there has been the closest liaison in all this work not only between the Services but also with the Dominions and our Allies: their scientists have worked alongside ours in the Institute, and in some instances still continue to do so. No less important has been the liaison with aircraft designers and scientists on the material side. It was by this whole-hearted co-operation and fine team spirit that such excellent and rapid progress was made in aviation medicine during the war; it is sincerely hoped that this friendly collaboration will continue in peace to ensure the fullest support for aviation in general so as to make it the safest, most comfortable, and quickest mode of travel.

This is a high-speed aerial review of the progress made in aviation medicine during the war, and, as in an aerial view, the ground covered is extensive but detail is lacking: you get only glimpses of this new country through the clouds of obscure description and so your imagination must fill the gaps. Likewise, as you cannot see the whole world in an hour, even in the fastest of aircraft, so this picture of aviation medicine covers only a small portion of the valuable work done by as fine a team of scientists and medical officers as anyone has ever been privileged to direct.

I wish to pay high tribute to all those who have given so much and often risked so much in these researches—physiologists, psychologists, Flying Personnel Medical Officers, and Squadron Medical Officers, and to those who gave all—Group Captain Hugh Corner and Squadron Leader D. A. H. Robson.

INADEQUATE FEEDING IN HOSPITALS

A STUDY OF CONTRIBUTORY FACTORS*

BY

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Loss of weight, which is sometimes considerable, is not an uncommon occurrence in patients admitted to hospital. In Royal Canadian Army Medical Corps hospitals in Canada losses of weight have been noted in over half the patients observed, and ranged from 10 to 60 lb. (4.53–27.2 kg.).[1,2] Lyons[3] has reported similar losses of weight in soldiers in U.S. Army hospitals. Such findings are certainly not confined to those treated in military establishments, for Elman,[4] Taylor,[5] and others have recorded similar observations in civilian hospital patients. At the end of 1943 this state of affairs in Canadian military hospitals in Canada was surprising, since the raw foodstuffs available for hospital use were, according to accepted standards and practices, more than ample.

In this paper, therefore, we record measurements made on actual food intakes of patients in Canadian military hospitals in Canada, and we report observations made during the past few years on factors which have contributed to inadequate protein and caloric intakes. We will also discuss briefly the relationship of so-called "toxic destruction" of protein to loss of body mass and to protein and caloric requirements. Finally, we will present some data to illustrate the effects of a campaign planned to maintain high standards of nutrition in the sick.

Methods

Dietary histories were taken and measurements were made of the food consumed by patients in Army hospitals in Canada. These men were subsisting on the ordinary ("full") hospital diet; they had normal gastro-intestinal tracts and were convalescent after surgical procedures. Over a three-day period all food actually offered to each patient was weighed before and after the meal. Hospital supplementary feedings were measured, and all patients kept a list of extra food supplied by friends or obtained from the Red Cross or the hospital canteen. Food platters were chosen at random so that the servings would represent those usually given by the nursing sister. The caloric, protein, fat, and carbohydrate values of the ingested food were calculated from National Research Council tables of food composition. The results were analysed statistically.

Various aspects of hospital catering which might affect intake of food were studied in over 30 hospitals. Observations were made on supplies of food available in depots, the ordering of

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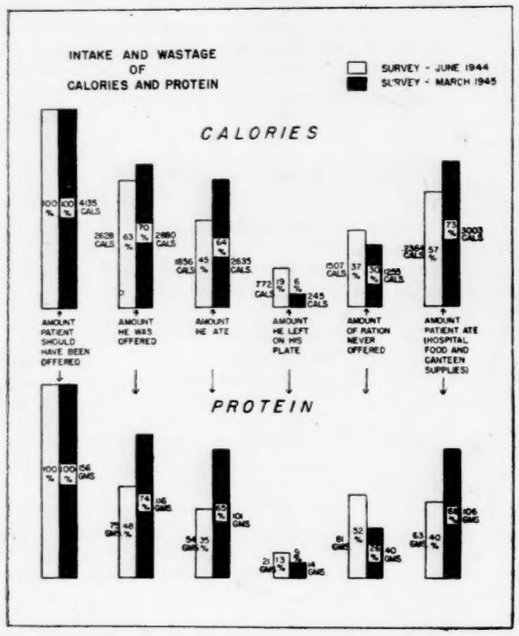
food, kitchen and ward equipment, the ability and training of cooks, methods of cooking and serving food, and the attitude of the medical staff, the nursing staff, and the patients themselves toward food intakes.

Results

The ration scale for R.C.A.M.C. hospitals in Canada from which ordinary or "full" diets are prepared consists of 156 g. of protein, 144 g. of fat, and 539 g. of carbohydrate, and provides approximately 4,100 calories. From these sources the patient got three meals a day and sometimes supplementary feedings such as eggnogs (100 to 200 calories and 10 to 20 g. of protein), milk, cocoa, and biscuits.

We found three main reasons why patients did not ingest their full ration. First, although foodstuffs were plentiful in depots, hospital staffs did not indent for their full entitlement; secondly, some wastage occurred during preparation of the food in the kitchen and through failure to use food left over; thirdly, considerable amounts of food were left on the plates by the patients. Improvement in food intakes which was noted some months after an educational campaign was instituted is here shown in a graph.


INTAKE AND WASTAGE OF CALORIES AND PROTEIN
SURVEY - JUNE 1944
SURVEY - MARCH 1945
CALORIES
PROTEIN
AMOUNT PATIENT SHOULD HAVE BEEN OFFERED
AMOUNT HE WAS OFFERED
AMOUNT HE ATE
AMOUNT HE LEFT ON HIS PLATE
AMOUNT OF RATION NEVER OFFERED
AMOUNT PATIENT ATE (HOSPITAL FOOD AND CANTEEN SUPPLIES)

Graph showing the daily intake and wastage of calories and protein of patients in a Canadian military hospital before (white) and after (black) an educational campaign planned to improve hospital nutrition.

The results of the observations have been recorded for two hospitals in the accompanying Table. The average quantity of food ingested by each patient each day, from hospital sources, provided 74 g. of protein and 2,210 calories. The lowest intake for each day of the three-day period was 25 g. protein and 764 calories, and six patients had less than 1,600 calories a day. The highest intake in any individual was 114 g. protein and 3,094 calories. In one hospital in Canada the patients averaged only 54 g. of protein and 1,856 calories.

Table showing the Total Intake of Protein, Fat, Carbohydrate, and Calories of each Patient each Day in Two R.C.A.M.C. Hospitals in Canada. The Amounts of Food Left on each Plate are also shown

Per Man Per Day	Proteins in Grammes		Fat in Grammes		Carbohydrate in Grammes		Calories	
	Hosp. A	Hosp. B	Hosp. A	Hosp. B	Hosp. A	Hosp. B	Hosp. A	Hosp. B
Food actually ingested	54	74	73	93	239	276	1,856	2,272
Food left on plate ..	21	12	22	11	119	69	772	428
Food served to patient	75	86	95	104	358	345	2,628	2,700
Food never obtained and kitchen wastage	102	70	71	40	300	194	2,279	1,435

Factors Contributing to Hospital Malnutrition

The Medical Officer and Nursing Sister.—Generally speaking, at that time malnutrition was rarely considered as a cause of delayed convalescence or rehabilitation. The present emphasis in R.C.A.M.C. hospitals in paying particular attention to the food intakes and nutritional status of the individual patient was not widely recognized, and these and other points had to be stressed in educational programmes. For example, medical officers had to be told of the necessity for taking steps to see that patients were actually eating the food which had been ordered in the ward order books. This was essential, as we had observed in civilian hospitals[20] that, in general, a gross discrepancy existed between the surgeon's or physician's impression that an adequate diet was being ingested and the actual intake achieved by the patient. The following cases illustrate this point.

A patient in a surgical ward suffered from Pott's disease. Because of this and a prolonged attack of infective hepatitis he was placed on a high-protein diet. When his intake was measured it was found that he was getting only 86 g. of protein each day and 2,690 calories. Another patient was recovering from a compound fracture of the femur and developed jaundice. Orders were written for him to have a high-protein low-fat diet. When measurements were made he was found to be taking a relatively high-fat low-protein diet, for his protein intake was only 67 g. a day. In neither instance had the discrepancies been noted by the attending medical officers.

The necessity for frequent consultations between the medical officer, the dietitian, and the nursing staff regarding special diets, special foods, and special feeding techniques for individual patients who required special nutritional care was also pointed out.

It was found, too, that, during their training, nursing sisters had not been taught the importance of *ensuring* adequate intakes of food in the average patient who was not subsisting on "special" diets. This was not surprising, since the medical profession has only recently recognized that ensuring adequate food intakes is a therapeutic measure which speeds recovery and rehabilitation. Consequently, nursing sisters, as in civilian life, looked upon feeding the patient as a routine measure and let the individual patient's appetite be the guide to intake. We therefore encouraged them to see that food was served hot and in an attractive manner, to offer second helpings, to persuade patients to eat, and generally to attend to the intake of protein foods by the individual patient.

The Patient.—The majority of patients correctly believed that the caloric requirements of a man in bed are much lower than those of a man doing work. But they made no distinction between the requirements for a healthy man lying in bed and those of a sick man in bed. The patient's appetite was poor immediately after trauma, operations, and burns, or during the acute phase of an illness. Poor appetites persisted, and patients got into the habit of not eating unless they were stimulated by attractive food, or through education, suggestion, or persuasion given by the attending medical officer. Patients often disturbed their appetite by eating chocolate, biscuits, and other confections just before or between meals. In summer, especially, aerated soft drinks were consumed in large quantities and disturbed appetite considerably.

The Dietitian and Cooks.—Nearly all dietitians and cooks were anxious to prevent waste, and in some hospitals did not provide enough food. Consequently helpings served to the patients were often skimpy. There was also a tendency to serve too many stodgy and unappetizing dishes made from inexpensive types of food, such as bread and flour, in an effort to keep down costs. Such dishes contributed to much wastage on the plates.

The Hospital Administrative Staff.—The hospital administrative staff, quite rightly, attempted to keep costs down when purchasing food, but in a considerable number of hospitals the amount of money spent on raw foodstuffs was ludicrously small, and consequently food purchases did not cover nutritional requirements.

Spacing of Meals and Supplementary Feeding.—In many hospitals, although meals are supposed to be properly spaced,

we found patients getting breakfast late in the morning and lunch being served at noon or soon after. Since the midday meal was the main meal of the day, patients who had had a late breakfast left food on their plates. The common practice of serving supper at 4.30 or 5 p.m. meant that many patients went without food, save for cocoa and biscuits, for 15 hours or longer. Supplementary feedings, such as eggnogs, were used frequently. Water and sweetened orange juice were the main fluids provided at the bedside, and none of these drinks contributed much to either the caloric or the protein intake of the patient.

Equipment.—Special modern equipment, such as Hobart mixers, which help cooks and dietitians to prepare and serve attractive food, was often not in sufficient supply. Chipped white enamelware and cracked crockery, which was used occasionally in some hospitals, certainly did not stimulate the appetites of those who were ill.

Discussion

Peters[6] points out that, despite the discovery of new agents and techniques which have reduced mortality, complications, and permanent disabilities, the overall duration of the period in hospital and of disability has not been reduced. He states that loss of strength and undernutrition were prominent among the factors which appeared to retard convalescence and rehabilitation.

In our experience many physicians and surgeons who regard loss of weight in hospital patients as inevitable explain wasting as "disease atrophy" or believe that most of the loss is due to harmless utilization of body stores of fat at a time when appetite is poor and the body requires some source of energy. The investigations of Shaffer and Coleman on typhoid fever[7] in 1909 showed that the wasting which occurred in that disease was due to breakdown of protein tissue with excretion of large quantities of nitrogenous substances in the urine. Since then this phenomenon, which by long usage is still described as "toxic destruction of protein," has been shown to occur after burns,[8] injury and elective operations,[9 10] haemorrhage,[11] and other conditions.[12 13]

In some patients the excretion of nitrogenous end-products is very large. Browne of McGill[2 10] reports excretions of between 25 and 35 g. of nitrogen in the urine each day in convalescent surgical patients. This is equivalent to the metabolic breakdown of 1½ to 2¼ lb. (0.68–1.13 kg.) of muscle tissue. In one obese patient who suffered 20% burns marked weight-loss occurred. Investigation showed that he too was excreting nitrogenous waste products. This was the probable cause not only of the loss of weight but also of failure of skin grafts to take. Correction of his diet, which ensured large intakes of protein and cut down the overall nitrogenous loss from the body, resulted in a gain of 1/2 lb. (227 g.) a day in weight and considerable improvement in the appearance of the granulating areas. The next attempt at skin grafting was successful, and the grafts took excellently.

As yet there is no adequate explanation of the factors which produce the metabolic or "toxic" breakdown of protein that follows upon insult to the body. However, it is rational to associate it with the loss of strength, loss of weight, and atrophy which we have seen in patients in military hospitals. While no specific therapy is available to stop the body protein from breaking down, Taylor,[14] Elman,[15] Mulholland,[16] Browne,[2] and others have all shown that the phenomenon can be controlled by adequate feeding, with larger quantities of protein and calories than has been the practice.

Taylor advocates[14] a daily intake of about 2 to 3 g. of protein and between 50 and 60 calories per kilogramme of body weight (approximately 150 g. of protein and 3,500 calories for a 70-kg. man). In some individuals he has had to feed (by use of gavage or intravenous methods) up to 300 g. of protein a day to maintain body mass. Browne and his colleagues[2] suggest similar intakes of food to maintain adequate nutrition in the average hospital patient.

As the food intake of patients in R.C.A.M.C. hospitals in Canada fell short of the above-mentioned standards, and as so many of our soldiers were losing weight, a vigorous educational campaign was launched in the summer of 1944 to increase the intake of protein and calories. Studies[17] made some eight months later showed a satisfactory improvement (see Graph). These and other observations indicated that about 100 g. of protein and approximately 3,000 calories were probably as much as the average patient would consume at three meals by means of the ordinary diet, and that protein and calories above these amounts would have to be provided through supplementary feedings.

By the end of 1944 the Research and Development Branch of the Directorate General of Medical Services, in co-operation with the National Research Council of Canada, MacDonald College, and the Royal Victoria Hospital, McGill,[18 19] had developed a satisfactory powdered high-protein milk-shake mix* with five assorted syrup flavourings which was easily reconstituted into a palatable and acceptable drink. The tinned powder stored well, could be made up in large quantities in the kitchen, and provided high food value in small bulk: this was also important, as the patient judged his food intake by volume rather than food value. By this means an extra 72 g. of protein and 1,100 calories could be given in the form of two small and one large milk shake taken during the day.

By clinical trial it was found that the most suitable routine was to serve the meals exactly at 7.30 a.m., 12 noon, and 5 p.m., and to give one 8-oz. (227-ml.) milk shake at 10 a.m. and another at 2.30 p.m. A 16-oz. (454-ml.) milk shake was taken at bedtime, usually 9 p.m. In some patients one or two of the supplementary feedings were omitted because it was considered that their requirements for protein and calories were at a lower level. It was found to be impracticable to give more than 8-oz. feedings at each of the two daytime supplementary feeds, as a larger quantity interfered with the appetite for the next meal. For the same reason it was imperative to ensure that the meals and supplementary feeds were served on time.

With increased food intakes, such as occur with the regime outlined above, clinical improvement in our military patients is noticeable. It is our belief that civilian patients would obtain similar benefits. Therefore we recommend adoption by civilian hospitals of the educational and catering programmes mentioned in this paper.

Summary

The cause for the loss of weight of patients in military hospitals in Canada has been investigated. Primarily this appears to depend on the "toxic" or metabolic destruction of body protein, but is aggravated by the inadequacy of the usual hospital diets. These diets were particularly inadequate in proteins and calories, having reference to the requirements of these patients.

The cause for the inadequate diets was found to lie in: (1) tendency of hospital staffs to economize; (2) lack of proper supervision of dietary intakes by the medical and nursing staffs; (3) improperly spaced meals and lack of appetizing dishes. Correction of these faults and the introduction of a high-protein milk shake raised the food consumption to satisfactory levels. The average maximum tolerable consumption has been defined.

The advisability of applying the lessons learned in military hospitals to civilian hospitals has been discussed.

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* Department of National Defence: Powdered High Milk Protein Supplement, Mark I.

THE ITCHY PATIENT

BY

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The skin has been picturesquely described as the mirror of the mind because it reflects the emotional state of the individual. This process is illustrated by such common phenomena as blushing with shame, blanching with fear, and sweating with anxiety. Other cutaneous responses may be peculiar to the individual—for example, in a subject who develops goose-flesh, accompanied by a feeling of "the teeth being set on edge," when an apple is peeled in her presence. A number of purely subjective cutaneous responses to emotion are also observed, including tingling and a sensation of warmth when the "start" reflex is excited, and "cold shivers" aroused by various emotions.

Itching may also be a manifestation of anxiety, as in one of our patients who would find himself scratching when under emotional stress; and in another, a worry-prone and eczematous individual, whose mental and physical disability disappeared after learning that his domestic and business problems had been solved.

Psychological Factors

The psychopathology of skin disease does not constitute a special problem; it is not fundamentally different from those disorders which it is now customary to call psychosomatic, and in this sense certain dermatoses are as much members of the group as asthma. Thus an attack of eczema may follow such diverse events as a near-miss by a bomb, worries over finance, besides contact with irritating solutions; for psychiatric investigation shows that in addition to a purely physical mechanism there are a great number of psychological factors which may operate in the production of those disorders of structure and function of body and mind which are covered by the term "psychosomatic."

Sir William Gowers's chapter on headache in his celebrated textbook may here be usefully recalled as illustrating psychological factors producing subjective sensations—e.g., itching. He calls attention to the effects of directing the thoughts to the vertex of the skull, pointing out the diverse unpleasant sensations which result from this exercise even after a short while. "It is easy," he adds, "to understand that such a sensation may be increased by constant attention, to an unpleasant and even distressing degree, especially if some real sensation originally 'drew' the attention to the part" (Gowers, 1888). This experiment can be applied to the skin: by focusing attention upon a selected area a sensation of itching may there be produced without any peripheral cause. With certain individuals obsessional preoccupation with some region of the skin, independent of or in association with minor skin disease, may be enough to evoke a sensory result at least similar to that produced by severe structural changes.

Physical Factors

Now itching, like pain, is a symptom which can be evoked at various levels of the nervous system; according to Walshe (1942) it is a variant of pain. Peripherally it may be excited by parasitic diseases such as scabies and pediculosis, or by systematized diseases such as psoriasis. At the cortical level it may be excited by such agents as cocaine. At the highest level, the level which it is convenient to regard as that of the mind, irritation may also originate. Even when moderate, itching can, if prolonged, occasion considerable distress; but when severe it becomes as tormenting as pain, and, like pain, may drive the unfortunate victim to almost any extremity. It compels the sufferer to inflict upon his skin secondary changes in the form of excoriations and a peculiar thickening, termed "lichenification." This latter symptom-complex, often referred to as neurodermatitis, might perhaps be better described as psychodermatitis. Patches of lichenification either may arise in an objectively normal skin as a result of itching and scratching or may appear as a complication of and an addition to an itching eruption. Lichenification is especially common in atopic (allergic) eczema.

Treatment

It can therefore now be accepted that in the production of itching, as in the production of pain, both mental and physical factors are recognizable. When itching is physically determined, no more than local treatment, which removes the cause or restores the skin to its normal state, may be necessary. When psychological factors predominate, treatment of the individual as a whole calls for the co-operation of the psychiatrist. If, however, the urge to scratch can be, for a time at least, abolished by sedation or local therapy, "cure" may result because a vicious circle has been broken.

As a first trial in an endeavour to break a vicious circle, sedation by intravenous medication was attempted. For this purpose one gramme of novocain in one litre of glucose-saline was delivered in a hundred-minute period into a vein daily for one week. This procedure was based upon the effects observed in the treatment of superficial burns—which, it was recorded, became insensitive for many hours—and upon effects noted in the control of the pruritus of jaundice (Gordon, 1943; Lundy, 1942; Tovell). Although itching could be allayed for 10 to 15 hours by this means the period was found to be too short to be effective, and as there was a risk of producing toxic effects larger doses were not favoured. Further, this procedure lacked any useful psychological effect.

For the second trial a form of chemical sedation was chosen which could be made to act longer with less risk of poisoning, having in addition a beneficial influence on the depression and anxiety so often present. There is nothing new in the principle: Macbeth's desire for "sleep that knits up the raveli'd sleave of care . . . balm of hurt minds" is probably as old as mankind. In the nineteenth century sedation by opium and inhaling ether and chloroform was employed in the treatment of mental illness. In the early twentieth century chloral and bromides were similarly used; and later barbiturates, which facilitated the development of continuous sleep, as a form of treatment. By applying a method of inducing continuous sleep for the relief of conditions characterized by itching it was hoped, in our series of cases, to achieve two ends: first, cessation of scratching, thereby permitting local healing; and, secondly, the amelioration of the accompanying mental symptoms, thus breaking the vicious circle of mental and physical distress → worry, depression, scratching, → increasing distress. While recognizing that this form of treatment has the disadvantage of being symptomatic, it has nevertheless been effective.

The technique of continuous narcosis followed that described by Sargant and Slater (1944), aiming at 20 hours' sleep out of the 24 over a period not longer than a fortnight. The main drug given, morning and evening, was "somnifaine," and the supplementary drug paraldehyde. The results have seemed to us sufficiently instructive to warrant the description of a series of 17 cases. It should be clearly understood and emphasized that continuous narcosis is a dangerous form of treatment requiring experience and adequate nursing accommodation, first, to avoid mishaps which may even be lethal, and, second, to secure peaceful sleep of sufficient duration and depth to produce the desired object. It is undesirable to attempt continuous narcosis except under carefully selected conditions.

The series of cases treated and under review can be divided into four psychological groups, as follows:

1. Those who were psychologically normal and, if worried or depressed, were judged to show a normal reaction to their disability. This group numbered 5.

2. Those who showed mood disturbances which preceded exacerbations of the skin disorder, numbering 7.

3. Those in whom the relationship of the mood disturbance to the dermatosis was uncertain, numbering 3.

4. Those unclassified, because not examined psychiatrically, numbering 2.

Analysis of Cases

The accompanying table summarizes the clinical types, treatment, and the results of treatment. The association of mental and physical changes has long been recognized in what is called atopic eczema, "atopic" meaning strange or unusual, providing

Summary of Clinical Types, Treatment, and Results of Treatment

Case	Age (years)	Disease	Duration	Psychological Characters	Physical Characters	Narcosis	Mental Results	Physical Results
1 M	24	Atopic eczema	24 years	Cyclothymic type; depression precedes skin attack	Three weeks' severe exacerbation uninfluenced by rest and local applications	14 days; uneventful	Worry and depression relieved	Improved, and improvement maintained when reviewed after 6 months
2 M	25	,, ,,	25 ,,	Epileptic; cyclothymic type; mentally backward	Eruptions extensive and continuous	14 days	Less depressed	Improved, and improvement maintained
3 F	29	,, ,,	25 ,,	Worry-prone; anxiety exacerbates skin disease	Eruption almost constantly present over 25 years	10 days; uneventful	Improved	Improved, and improvement maintained when reviewed after 8 months
4 M	48	Eczema	5 ,,	Cyclothymic type; depression precedes skin aggravation	Eczema chiefly arms and face; recent intolerable itching	10 days; uneventful	,,	Improved, and improvement maintained when reviewed after 4 months
5 M	39	,,	15 ,,	No psychiatric examination	Chronic eczema hands and feet; recent exacerbation	6 days; patient uncooperative	—	Improved, and improvement maintained when reviewed after 3 months
6 F	41	,,	6 mths.	,, ,,	Extensive eczema following scalded foot	11 days; uneventful	—	Improved, and relapsed. Systemic penicillin for sepsis of foot
7 M	43	Pruritus ani	2 years	Depression and anxiety secondary to disability	Pronounced objective condition	12 days; patient uncooperative	Improved	Unchanged
8 F	36	Pruritus ani et vulvae	8 ,,	Normal personality	Followed childbirth	10 days; patient uncooperative	—	Improved, and improvement maintained when reviewed after 2 months
9 F	41	,, ,,	7 ,,	Worry-prone; anxiety increases itching	Much aggravated after childbirth 2 years previously	11 days	Improved	Improved, and improvement partly maintained when reviewed after 5 months
10 M	34	Pruritus ani	7 ,,	Worry-prone; scratches under stress	Some perianal lichenization	14 days; patient uncooperative	,,	Improved, and improvement maintained when reviewed after 2 months
11 F	42	Pruritus ani et vulvae	7 ,,	Cyclothymic type; depression and skin trouble not established	Infective eczema ano-genital region	8 days; stopped because of vomiting	Slight improvement	Slight improvement, not maintained
12 M	39	Generalized dermatitis	20 ,,	Normal personality	Better and worse over 20 years	10 days; uneventful	—	At first worse, then improvement, maintained when reviewed after 6 months
13 M	53	Exfoliative dermatitis	2 ,,	Depression secondary to disability	Intermittent attacks of dermatitis becoming exfoliative and generalized	10 days on 2 separate occasions	No change	After each narcosis improvement, then relapse
14 F	42	Psoriasis	38 ,,	Normal personality	Chronic psoriasis, becoming acute with violent itching	10 days	—	Itching relieved, psoriasis unchanged
15 F	53	,,	13 ,,	Cyclothymic type; depression precedes exacerbations of psoriasis	Severe itching, 6 months, following gold injections for arthropathy	10 days	Less depressed	Slight decrease of itching
16 F	31	Atopic eczema	30 ,,	Cyclothymic type; relationship between skin disease and depression uncertain	Itching 1 year, began during pregnancy	5 days; patient uncooperative	Some improvement	Improved for 3 weeks only
17 F	40	General pruritus	1 year	Cyclothymic type; over-dependent	Itching with excoriations	5 days; patient uncooperative	Worse	No improvement

a convenient label for a group where eczematous reactions are found in association with the allergic disposition. Four of these cases are included in the series. Atopic eczema is a comparative rarity. As contrasted with common infantile eczema, which is without allergic affinities and almost always clears up by the second year, atopic eczema tends to settle early in the flexures of the elbows and knees and to continue to puberty or adolescence. In the severe forms the eruption becomes almost universal, with extensive secondary lichenization, persisting throughout life, with perhaps some degree of seasonal fluctuations—a variety often called Besnier's prurigo. No. 16 was an example of this severe type, and, apart from a temporary improvement, the record of failure is otherwise complete. In contrast, No. 2 improved both physically and mentally; this patient is now for the first time in his life in regular employment. An associated improvement in both the mental and the physical states was recorded in 7 cases (Nos. 1, 2, 3, 4, 7, 9, 10) and to a lesser degree in others (11, 15, and 16), which is evidence of the relationship between mental and physical states.

The cases under consideration include conditions with very different clinical characters; they have in common itching rising to such a degree as to require exceptional measures. Apart from this, their chronic and rebellious nature is revealed in the long duration—up to 38 years in one case. Taking into consideration these circumstances, improvement can only be relative, and in this sense most of the patients were relieved to a greater or lesser degree, and a crisis of almost insupportable itching, which was the motive for the continuous narcosis, was controlled.

Summary

Study of a group of itching dermatoses has shown that local treatment is adversely affected by scratching and by the psychological disturbances which commonly occur either as a prelude or as a sequel to the skin disease. These dermatoses are regarded as typical examples of psychosomatic disease.

A form of general treatment is described which has been found effective in controlling (1) the itching and scratching, and (2) the depression and anxiety, present in these cases.

In a series of 17 rebellious and chronic cases most of the patients were relieved after continuous narcosis.

No attempt was made to treat these patients by other than physical means. As they received no psychotherapy, treatment may be considered incomplete.

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TROPICAL ULCERS AND PENICILLIN

BY

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In South China tropical ulcers are a very common cause of suffering and disability, sometimes resulting in crippling and even death. The following notes, based on seven years' experience in that region, give some idea of the nature of these ulcers and of their remarkable response to treatment with penicillin.

Aetiology

The causative organisms are said to be Vincent's spirochaete and *B. fusiformis*. In smears of pus from the ulcers in the early stages I have constantly found *B. fusiformis*, but in only one case (not in the series here recorded) did I find spirochaetes as well. It is possible, then, either that the spirochaete is only occasionally present as an additional infection, or that it may occur only in the deeper tissues and not often appear in smears of the discharge. The finding of *B. fusiformis* in the smears has therefore been of diagnostic value, and indicates the response to treatment that may be expected.

The occurrence of the ulcers apparently depends on three factors:

1. *Portal of Entry for the Infection.*—This is usually the foot or lower leg, where any lesion, from an insect-bite to an extensive wound, may become infected. When ulcers occur on the hand the infection is usually secondary to scabies lesions between the fingers. Occasionally, in severely debilitated persons, they may occur on the outer side of the thigh, and these are the worst. Elsewhere on the body they are rare, as in the case of a man who had his scrotum pierced by a piece of sharp bamboo and developed an ulcer in the wound.

2. *Presence of the Infecting Organisms.*—The question arises whether these organisms live an active life outside the body and, if so, where their usual habitat is. Many of those with multiple ulcers on their legs are soldiers who are covered all over with scabies lesions and scratches, yet on the trunk these scratches do not develop into ulcers. Peasants and soldiers who constantly go through mud with bare feet most frequently develop tropical ulcers. It is very rare to find them in anyone who keeps his feet well washed.

3. *Poor Resistance to Infection.*—Tropical ulcers are rare in the robust. They occur usually in those who are undernourished and debilitated from disease; hence they sometimes appear almost like an epidemic among badly fed and disease-ridden Chinese troops.

Summary of Ten Cases of Tropical Ulcer

Case	Time from Onset to Start of Treatment	Site of Ulcers	Number of Ulcers	Size	Fever	Pus Smear	Treatment with Penicillin
A	One month	Scrotum	Single	1½ in. (3·8 cm.)	99° F. (37·2° C.)	Fusiform bac., few; mixed cocci +	Dressings; local injn., 10,000 units
B	3 days	Hands	Multiple	½ to 1 in. (1·27–2·54 cm.)	98·4° F. (36·9° C.)	Fusiform bac. +; mixed cocci, few	Dressings; I.M., 90,000 units
C	6 weeks	Legs	,,	¾ to 1½ in. (1·9–3·8 cm.)	98·6° F. (37° C.)	Fusiform bac. ++; mixed cocci, few	Dressings only
D	4 days	,,	,,	¾ in. (1·9 cm.)	101·4° F. (38·55° C.)	Fusiform bac. only	Dressings; I.M., 90,000 units
E	Primary, 5 mths.; relapse, 7 days	Dorsum of foot	Single	2½ in. (6·3 cm.)	103° F. (39·4° C.)	Fusiform bac. ++; mixed cocci, few	,, ,, ,,
F	2 weeks	Legs	Two	3 in. (7·6 cm.)	102° F. (38·9° C.)	Fusiform bac., few; mixed cocci +	Dressings; local injn., 10,000 units; I.M., 90,000 units
G	1 week	Legs and hands	Multiple	1 in. (2·54 cm.)	100·4° F. (38° C.)	Fusiform bac. +; mixed cocci +	Dressings; I.M., 60,000 units
H	6 weeks	Ankle	Single	1 in. (2·54 cm.)		Fusiform bac. only ++	Dressings; local injn., 10,000 units
I	Primary, 3 yrs.; relapse, 10 days	Leg	Two	2½ and 4 in. (6·3 and 10·8 cm.)	101° F. (38·3° C.)	Fusiform bac. only ++	Dressings; I.M., 75,000 units
J	3 days	Hands	Multiple	½ to 1 in. (1·27–2·54 cm.)	99° F. (37·2° C.)	Fusiform bac. only	Dressings; I.M., 90,000 units

Yet I have not seen evidence of direct infection from one ulcer to another. Although ulcers may occur at any time in the year, there is a seasonal prevalence in August and September, when debility from malaria and dysentery is most widespread.

Clinical Manifestations

There are two definite stages in the progress of a tropical ulcer—that of invasion and that of healing. In the early stages of an acute ulcer there is a small black area of wet gangrene covered by cuticle only (the original wound, if small, has usually closed before the ulcer starts). This is surrounded by inflammation and oedema, which may extend over the whole foot or leg. The affected area is extremely painful and tender, and there is varying constitutional disturbance, which in severe cases amounts to a fever in the region of 103° F. (39.4° C.), and a muddy "toxic" complexion. In the course of a week or so the area of necrosis increases until it extends over perhaps one-third of the circumference of the limb or digit. The cuticle will have broken off in the early stages, and a copious blood-stained discharge of thick pus pours from the surface of the ulcer. It has a strong offensive odour which is characteristic and unforgettable. When the discharge is washed away the base of the lesion presents a ragged bleeding surface the colour of decomposing blood.

The edge of the ulcer is raised and indurated, except in very acute cases, when it is punched out. The necrosis is usually confined to the skin and subcutaneous tissues, but sometimes muscles, tendons, and even the bone may be invaded. Unless the tendons are involved there is seldom any tough adherent slough, and the invading organisms seem to have the power of complete cytolysis.

If the ulcer is untreated the length of the invasive stage and the extent of the damage are unpredictable. But the process will be arrested spontaneously, and the lesion then begins to heal—but slowly, owing to the induration of the underlying tissues. It may take years for skin to form completely over a large ulcer on the front of the leg, and, both during and after the healing stage, a recurrence of ulceration with fusiform bacillus infection is very probable.

The above description is of a severe ulcer, but many of them are comparatively benign. Some begin to heal when they are only half an inch (1.25 cm.) in diameter; in others the invasion progresses slowly over a period of weeks without surrounding inflammation or fever. However, there are three characteristics common to all these ulcers in the invasive stage: first, the progressive necrosis of skin and subcutaneous tissue; secondly, the blood-stained offensive discharge; thirdly, the presence in the pus smear of fusiform bacilli with or without a mixed infection of cocci.

Treatment

Until the arrival of penicillin the best treatment that I could find for the invasive stage was the application of magnesium sulphate paste to the cleaned ulcer twice a day. In the case of an acute ulcer this application is very painful for about half an hour, but the patient feels sufficient benefit to come back next day for treatment. After about four days the ulcer becomes clean, and in a week the healing stage may have begun. I have given 0.6 g. of intravenous neoarsphenamine in the early stage, and the invasion has progressed as if untreated. Sulphanilamide, whether administered internally or locally, has no beneficial effect that I have seen.

In May, 1945, a friend in the U.S.A.A.F. gave me a batch of penicillin to try out on special local diseases. I admitted 10 cases of tropical ulcer in the invasive stage and treated others as out-patients. Treatment with penicillin, even in the small doses to which we were restricted, had very good results. In one to three days, according to the severity of the case, the fever and the surrounding inflammation subsided, and the ulcer presented a smooth clean granulating surface. The inflammation disappeared so rapidly that the thick base of tough scar tissue which makes the healing of ulcers so slow did not form.

Penicillin was given locally and by injection. In every case a solution of 500 units per ml. in distilled water or saline (both were effective) was applied on gauze to the cleaned ulcer twice a day. In addition, all except the mild cases received intramuscular injections of 15,000 units three-hourly up to a maximum of 90,000 units. Two cases were given an injection of 10,000 units into the tissues beneath the base of the ulcer. The milder cases, which had only external applications, cleared up as quickly as those having injections.

Treatment in the healing stage is similar to that of varicose ulcers, in that rest in bed considerably hastens the healing, and, apart from skin grafting, the best local treatment is to bind the ulcer in elastoplast, which can be changed after seven to ten days.

Conclusion

The tropical ulcers of South China here described appear to be a pathological entity caused by infection with *B. fusiformis*. Penicillin has a powerful therapeutic action on them, and, when the drug becomes more widely available for their early treatment, an immeasurable amount of suffering and disability will no doubt be saved.

ANGIOBLASTOMA OF THE BREAST COMPLICATING PREGNANCY

BY

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Since 1920 about one case of mammary haemangioma a year has been reported, in approximately equal numbers of cavernous and capillary types, and with evidence of malignancy in eight of these. Menville and Bloodgood (1933) describe eight examples, only one of which was malignant, in 3,000 consecutive breast neoplasms examined histologically. As probably all angiomata, but not all carcinomata, would be examined, this may well be too high a proportion. This is the only case treated at Charing Cross Hospital over a period in which about 1,000 breast tumours were seen. This suggests a general incidence of not more than 0.1% of all mammary neoplasms, while the incidence of malignant haemangioma may possibly be as low as 0.03%—truly a rare condition. No recorded case, however, appears to have been associated with pregnancy, nor has the tumour reached such an enormous size as this one; and the malignant cases were generally of much lower grade. These three factors may possibly be interrelated, and, I think, make this case worth recording. The high degree of clinical malignancy, shown by the rapid recurrence and fatal outcome within nine months, was not predictable on histological grounds. Microscopically there was actually very little tumour tissue to be seen, which explains the earlier biopsy being quite negative even after re-examination in the light of subsequent findings.

Menville and Bloodgood, in their review, point out that there is often enough clinical evidence for the diagnosis to be considered pre-operatively. Although this tumour was clinically atypical, the extremely rapid increase in size in April, due presumably to an interstitial haemorrhage, was suggestive.

It has long been recognized that pregnancy may be associated with a particularly virulent form of carcinoma of the breast, but here we have an example of the mesoblastic tissues undergoing a malignant change under the influence of pregnancy. There was probably a pre-existing simple angioma which was stimulated into activity by hormonic influences similar to those which possibly produce carcinomata. It seems less probable that the process is a two-step one, the epithelial tissues, themselves stimulated by circulating hormone, causing a local stimulation of the surrounding mesoblastic tissues; for then one would expect mammary angioma to be much commoner than the above figures suggest.

Report of Case

A primipara aged 20 was admitted on April 17, 1945, with an enormous tumour of the left breast. The patient became pregnant in October, 1944, and three months later first noticed that the breast was becoming hard. Ten days before admission, for a reason not then apparent, the breast rapidly swelled and became tense, painful, and discoloured. She had a swinging temperature up to 103° F. (39.4° C.), and her pulse rate was 120 a minute. A diagnosis of probable suppuration was made, but attempted aspiration yielded only blood, which on culture was sterile. It then seemed likely that the condition was a lactation carcinoma or a sarcoma, and the patient was transferred to Charing Cross Hospital for radiotherapy. This was immediately started, but the tumour continued to increase in size as judged by circumferential measurement. At this stage the appearance of the tumour was of a very large rounded mass, 72 cm. in circumference, in the position of the left breast. The thin overlying skin had ulcerated, the ulcers being produced by the coalescence of the original aspiration punctures, each of which had been stretched to form a circular hole by the rapid increase in size of the tumour. They were thus serpiginous in outline, the edges being free from the underlying tissue, which appeared to be organizing blood-clot.

The patient's general condition deteriorated steadily; her temperature remained high and her haemoglobin fell to only 4.8 g. % owing to several gross haemorrhages from and into the tumour. A biopsy was taken of the skin and underlying tissue and of material from the centre of the tumour, but no neoplastic cells were found, the sections showing suppurative reaction only. Local amputation after transfusion was decided upon, being performed on May 7 (by Mr. Norman C. Lake) under trilene anaesthesia with no ill effect on the pregnancy. Her temperature immediately subsided, and her haemoglobin rose rapidly to 10.3 g. % on iron therapy.

Two weeks after operation a minute plum-coloured recurrence appeared in the scar. This resolved with radiotherapy, but recurred again, ulcerated, and bled. Subsequently a diffuse mass was felt in the right breast; this also disappeared on treatment. She had a forceps delivery of a healthy female child at full term—July 12—

Photomicrograph of the tumour

and was given testosterone to dry up the right breast. She was discharged to the out-patient department, but attended twice only. A follow-up showed that she went rapidly downhill and died on Sept. 13 from pneumonia consequent upon direct invasion of the lung, as shown by the fact that she suffered greatly from pleural pain. Necropsy was not performed.

At operation the tumour came away easily, but was found to infiltrate the pectoralis major over a small area. It was not possible to decide whether it originated in the muscle or infiltrated this from the breast. It weighed 2,400 g., had a maximum circumference of 75 cm., and on incision appeared macroscopically to consist entirely of semi-organized blood-clot.

The report on its morbid histology (Dr. H. W. C. Vines) was: "The growth is essentially haemangiomatous in type and has given rise to extensive haemorrhage. The appearances are fairly representative of a capillary angioma, but in some areas the cells are more anaplastic and a small number show mitoses. These are more suggestive of an angioblastoma, and it should be regarded as such."

I wish to thank Mr. Lake for his encouragement and permission to publish this case, and Dr. Vines for his pathological report and advice.

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Medical Memoranda

A Case of Cerebral Malaria on Board a Troopship

The following case of cerebral malaria is thought worth recording because of the bizarre mode of onset. It should be explained that the ship left the United Kingdom with a large draft on board, and that on calling at a port in a highly malarious area a few personnel were embarked; these were berthed in scattered accommodation available through the ship.

CASE RECORD

When two days out from the malarious port a seaman aged 22 was brought into the troop hospital with the history that he had been found on the mess deck in a fit. The man was screaming and yelling, was throwing himself about, and had carpo-pedal spasms. He did not look ill; general physical examination was negative, his reflexes being normal but brisk. His pulse rate was 110; it was impossible to take his temperature. He appeared to be in a typical hysterical fit, and was treated as such, by slapping and cold water. He did not respond, and after about 20 minutes was given morphine 1/4 gr. (16 mg.) and scopolamine 1/150 gr. (0.43 mg.) and was restrained in a Neil-Robertson stretcher. In the meantime his messmates were again questioned, but nobody knew him. Eventually a man who had also embarked at this port stated that he thought the patient had been in hospital with malaria. Blood films were taken, and one of them showed a moderate number of M.T. rings.

The patient remained more or less in the same condition, though more quiet after the morphine. He was incontinent of urine and faeces. His temperature was now 101.6° F. (38.7° C.) and pulse 80. A rectal drip saline was started, and he was given quinine dihydrochloride 10 gr. (0.65 g.) intramuscularly. Under general anaesthesia (ether) a lumbar puncture was done; the fluid was not under pressure and was quite clear. Ten hours after the injection he had a convulsion. This consisted of the slow onset of tonic spasms of all his flexor and facial muscles; his jaw was firmly clenched, and he went black in the face. The spasms gradually relaxed, the whole convulsion lasting about 40–60 seconds. Two hours later he was given 8 gr. (0.55 g.) of quinine in 20 ml. of normal saline intravenously. Four hours and six hours after the intravenous quinine he had two more convulsions similar to the one described.

The next morning, 12 hours after the intravenous injection, he was given quinine 10 gr. (0.65 g.) intramuscularly, and this was repeated in 12 hours' time. He was now having very short periods when he was almost conscious, responding to external stimuli and talking disjointedly, but on each occasion he relapsed into coma. Altogether he was in a coma for approximately 50 hours. During all this time he was nursed in a Neil-Robertson stretcher, well padded. He retained his rectal salines reasonably well, and during any conscious periods fluids were given by mouth. His general condition was fairly good all through, though his pulse rate rose gradually and became very thready and rapid after convulsions. His temperature was irregularly remittant between 100 and 104° F. (37.8 and 40° C.). He was now conscious and was given quinine 10 gr. t.d.s. for the next four days, during which time his temperature settled, and he was put on to mepacrine. His condition gradually improved, and he was transferred to a shore hospital; on transfer he was still dazed and disorientated. He was seen five days later in hospital and had then fully recovered. His blood films were now all negative for malaria. On inquiry at the hospital six weeks later it was found that he had been discharged to sick leave fully recovered.

In all he had had three intramuscular injections of 10 gr. of quinine and one intravenous injection of 8 gr. at twelve-hourly intervals during his period of coma, followed by 10 gr. t.d.s. by mouth for four days.

G. D. S. BRIGGS, M.R.C.S.

Drug Eruption due to Sodium Pentothal

Pentothal anaesthesia is so safe and pleasant, from the viewpoint both of the patient and of the doctor, that it seems ungracious to draw attention to unpleasant side-effects associated with its use. These reactions appear to be decidedly rare when one considers the vast number of cases in which the drug is administered, and that barbiturates seem particularly liable to cause drug eruptions. Lundy (1942) stated that he had observed in some cases an urticarial reaction during anaesthesia with pentothal, while Hunter (1943) has seen urticaria and a rash resembling erythema multiforme after pentothal administration. Idiosyncrasy to the drug was seen in two cases by Davison (1943), a fine scarlatiniform rash with pyrexia appearing a few hours after the injection and disappearing in 48 hours.

In the case now reported the patient had developed on three occasions a punctate purpuric rash following the use of pentothal.

CASE REPORT

Capt. X., aged 24, though a fit and athletic young man, had been anaesthetized on many occasions. He had had chloroform once, ether-chloroform mixture twice, and nitrous oxide on several occasions with no ill effects. In December, 1943, he was given sodium pentothal before operation on a wound. Two days later a rash appeared on both flanks, the sides of the chest, and the lumbar region. There was no malaise, pruritus was not severe, and the rash faded within a week. In January, 1944, he was again wounded; pentothal was once more given, and an exactly similar rash appeared and faded within a week. In March, 1945, sodium pentothal was administered before tonsillectomy, and next evening a rash appeared over both inguinal regions and spread over the sides of the chest, affecting also the axillae and lumbar area. The eruption took the form of fine purpuric spots, and disappeared entirely within a week. The rash was not itchy, and apart from slight malaise there were no constitutional signs or symptoms.

As expected in this type of drug rash, patch, scratch, and intradermal skin tests, using 2.5% pentothal, were all negative.

Grateful acknowledgment for permission to publish this case is made to Col. W. J. F. Craig, O.B.E. (Officer Commanding a General Hospital at that time); Brig. G. Y. Fegetter (Consulting Surgeon, C.M.F., lately Officer i/c Surgical Division); and Dr. D. J. Collier (E.N.T. Specialist in charge of the patient).

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Reviews

FRACTURES

A Complete Outline of Fractures. Including Fractures of the Skull. For Students and Practitioners. By J. Grant Bonnin, M.B., B.S., F.R.C.S. Second edition, revised and enlarged. (Pp. 658; illustrated. 30s.) London: William Heinemann. 1946.

The treatment of fractures has attracted a good deal of attention of late years and, despite its limited field, numerous monographs on the subject have appeared. The war has perhaps concentrated this interest and has certainly afforded an increase in experience of various methods.

The volume under review is a second edition of a work which first saw light in 1941. The book has been considerably enlarged in the process of revision and by the addition of chapters on open operations and war surgery. The section on fractures of the face and jaw has been rewritten by Mr. Barron. Injuries of the ankle are treated in greater detail, and this chapter contains observations on the mechanism of that joint which are of no little interest. The treatment of this important group of injuries is fully dealt with. The revision as a whole reflects, both in its convictions and in its precision of statement, the extended practical experience of the author. The use of local anaesthesia for the reduction of displacement is favoured in selected cases and under suitable conditions; an excellent outline is given of the methods advocated. The technical details of the use of plaster and other mechanical devices are clearly set out. The descriptive writing throughout is commendably clear and precise. Occasionally, as in the legend under Fig. 328, the author reverts to the old and confusing use of the term "extension" when traction is meant. The new chapter on open operations, though short, contains a judicial and almost conservative survey of the subject. The author does not overlook the historic developments concerned, and in summing up the pros and cons of operative treatment he is well content to reproduce the conclusions of the B.M.A. Fracture Committee of 1910. The problem of fracture treatment in childhood is given due representation in the text as a whole. The process and results of osteogenesis in the growing bone present such differences from those in the adult that one may perhaps look for a special chapter on this subject in the next edition.

This volume is to be commended alike to student and to house officer: it will afford sound instruction for the first and reliable guidance for the second.

ENDOCRINOLOGY OF GESTATION

Endocrinologie de la Gestation. By Robert Courrier. (Pp. 396; illustrated. 465 francs.) Paris: Masson et Cie. 1945.

Prof. Courrier's name is well known for his work on sex endocrinology and his many writings on the subject in the years between the two wars. In this book he brings together the results of his previous work and, fitting them into a review of the literature, presents a working picture of the hormone interplay which accompanies conception, pregnancy, and labour. The author points out that the writing of the book occupied several years, and during the later ones he was deprived of access to all except Continental literature. The book has not noticeably suffered on this account, and any omissions are to some extent compensated by the inclusion of some recent Continental references with which readers in this country may not be familiar. The subject-matter is concerned mainly with laboratory experiments, and, in applying them to the human being, due regard is paid to species differences. The book is arranged in five major sections, the first two being concerned with maturation and fertilization of the ovum, placenta formation, and the changes that occur in the various organs of the body during pregnancy. Then follows a brief account of the chemistry of the sex hormones and of their occurrence in body tissues and fluids during pregnancy. The author next deals with the factors concerned in the maintenance, prolongation, and termination of pregnancy. In the final section he sets out his concept of the hypophysial–corpus-luteum–placenta system and the part it plays in pregnancy, also mentioning the transmission of hormones through the placenta from mother to child and vice versa.

It seems fair to say that this book does not contain anything new, but it is a survey of present-day knowledge with an account of the main experimental findings on which that knowledge is based. None of the subjects is dealt with in any great detail and the bibliography has been kept within reasonable bounds. The illustrations are few and not of high quality, and the production is of utility grade. This, however, is not surprising when one thinks of the conditions under which it must have been prepared; indeed, the author is to be congratulated on having produced the book at all in what must have been difficult circumstances.

EVERYDAY PSYCHOLOGY

Abnormal Behaviour. By R. G. Gordon, M.D., D.Sc., F.R.C.P.Ed. (Pp. 75, 5s.) London: Medical Publications, Ltd. 1946.

It is still difficult to answer the question "Where can I find a sound commonsense book on practical psychology?" Dr. Gordon has already helped notably by his earlier book *The Neurotic Personality*. While on war service in West Africa, away from reference books and other psychiatrists, he wrote this little essay on commonplace abnormal behaviour from recollection of his long psychiatric experience. He is dealing here not with the criminal, the delinquent, or the nearly certifiable, but with the unhappy, aggressive, anxious or hag-ridden person whom we meet every day and whose tiresome peculiarities are mirrored faithfully, though perhaps not quite so intensely, in our own characters.

The first part of the book consists of 29 admirable pages on the normal, a subject to which psychiatrists have given practically no attention in the vast literature of their subject. In very small compass Dr. Gordon contrives to give the reader a clear inkling of what he means by behaviour, appetite, fear, conflict, responsibility, adjustment, and all the principal features of the normal psychological anatomy. Then he deals in the same commonsense language with the various types of abnormality—epileptic, cycloid, schizoid, and the rest—and sketches the common defence mechanisms of fantasy, depression, elation, suspicion, and so on with which we are wont to evade our problems. His chapter on bad habits is informed by a sane, positive humanity, and his account of mental deficiency reminds the layman of a factor which ought never to be, but which often is, forgotten in seeking for psychological causes. In dealing with lying, stealing, destructiveness, prostitution, and the other common forms of anti-social behaviour, Dr. Gordon shows his gift for putting a finger on the hub of a problem. In the final section on treatment, the department in which most writers on psychology betray their weakness, he contents himself with laying down general principles: positive, creative action rather than restriction and deterrence, and the need for knowledge, understanding, and love. It is hardly within his scope to indicate the manner in which these qualities can be profitably applied to particular types of abnormal behaviour. This application, the real difficulty, probably could not be taught by the longest book. In his opinion that no one in this country need feel out of reach of expert help he is perhaps optimistic, but it is typical of his practical mind that he gives the reader the address of the National Association of Mental Health as at any rate the first step.

V.D. IN GENERAL PRACTICE

Venereal Diseases in General Practice. By Svend Lomholt, M.D. With a Supplement on Penicillin, Mapharside, Sulphathiazole, etc. (Pp. 234; 39 illustrations in colour in 12 plates, 78 illustrations in black-and-white. 25s.) London: H. K. Lewis and Co. 1946.

Readers of this book by Svend Lomholt should note that it was completed before the war, which will explain why it does not appear to be up to date; this is compensated for by the inclusion of a supplement dealing with penicillin, intensive arsenotherapy, pyretotherapy, the newer sulphonamides, and the culture of gonococci.

It is easy to see that Prof. Lomholt is primarily a dermatologist and syphilologist; the chapters on syphilis, particularly those on the various skin manifestations and their differential diagnosis, are quite outstanding, while the illustrations are first class; in fact, anything more nearly approaching the real thing than the coloured plates it would be hard to imagine. The three main venereal diseases—syphilis, gonorrhoea, and soft chancre—are dealt with on conventional lines, and the author's views correspond very closely with those held and taught by most British venereologists; the concurrent-intermittent, and alternating-continuous methods of treating syphilis with arsenic and heavy metal are described and a preference is shown for the former. The value and importance of bismuth, a drug which has been rather underestimated in some countries, are very rightly stressed, while mercury is not considered so out-of-date as is sometimes suggested. With regard to gonorrhoea, the Neisser injection treatment is preferred to Janet irrigation as being more suitable for the patient to carry out himself. Other diseases which, though not necessarily venereal in origin, are commonly associated with V.D. include lymphogranuloma inguinale, granuloma venereum inguinale, balano-posthitis, herpes genitalis, condylomata acuminata, and simple (non-gonococcal) urethritis; these are dealt with very briefly. Trichomonas vaginitis is not mentioned.

It can be said without hesitation that the teaching of this book is eminently sound and many pearls of wisdom are included; nevertheless, there are many points which call for criticism. The author has an excellent knowledge of English but is not completely master of it, with the result that curious words, such as "clinicist," are included and others—e.g., phenomena—are repeated *ad nauseam*. It might have been better if the original had been translated into English by an Englishman. The description of the Wassermann test is far from good, and much more might have been said about the incidence of false positive reactions; the Lange reaction is not considered worth while, and only tertian (presumably benign) malaria is mentioned in the treatment of G.P.I., nor is tryparsamide advocated in addition. There are several serious errors. The amboceptor used in the complement-fixation test for gonorrhoea is not "the inactivated serum of rabbits treated with injections of an extract of guinea-pig kidney" (p. 175), at least not in Great Britain; and to give a dose of 0.15 g. of neoarsphenamine (p. 124) to a patient who had suffered from a severe arsenical dermatitis seems like asking for trouble. There are between twenty and thirty typographical errors which suggest that the proof reader or the printer is more blameworthy than the author. The general format of this book, the paper, and the clarity of the print are excellent, but the cover suggests continuous forked lightning or an attempt to present jazz music in a visible form and is bizarre.

Notes on Books

A B C of Medical Treatment, by Dr. E. NOBLE CHAMBERLAIN, is published in London by Oxford Medical Publications at 10s. 6d. The first impression left by this concise and excellently arranged little book might be that no qualified medical man should need it—an impression from which one cannot wholly escape while at the same time paying tribute to the care and skill with which it has been compiled. As will be seen, our criticism is directed against practitioners as the author appears to know them, rather than against the author.

Mr. H. W. L. MOLESWORTH has prepared a second edition of his small book *Regional Anaesthesia* to replace copies destroyed by enemy action. In revising it he has stuck to his original plan of relying on his personal experiences in the practice of a general surgeon. The publishers are H. K. Lewis and Co., and the price is 8s. 6d.

The proceedings of a conference on science and human welfare held last February in London have been published by the Temple Fortune Press (Mildner Works, Herbal Hill, London, E.C.1) at 2s. 6d. The conference was sponsored by the Association of Scientific Workers, supported by a number of other bodies, including the Physical Society and the Nutrition Society. Among the contributors are Sir Robert Robinson, Sir Robert Watson-Watt, Prof. A. V. Hill, Dr. Julian Huxley, and Mr. F. Le Gros Clark.

The February and April numbers of the *Surgical Clinics of North America* are now available in book form from W. B. Saunders Company, London and Philadelphia. The first is a Chicago number comprising a symposium on surgical technique, in which a group of surgeons, active in several fields, discuss their methods in a variety of operations. The second volume, a New York number, presents a symposium on surgical diagnosis, with six additional papers on other subjects. The main symposium, discussing some of the commoner problems of diagnosis, is chiefly by surgeons in the New York area, but there are also papers from the Montreal General Hospital and McGill group and from surgeons in the Services. Six numbers of the *Surgical Clinics* are published each year; the annual subscription is 55s. (paper covers), and 75s. (cloth covers).

Nova et Vetera

PHYSIOLOGY OLD AND NEW

Celsus said that Hippocrates' confession of a mistake in diagnosis was "more scilicet magnorum virorum et fiduciam magnarum rerum habentium." An associated trait of moral and intellectual greatness is shown by how a man whose scientific researches are epoch-making speaks of long-dead and largely forgotten predecessors who failed where he has succeeded. Small men speak with contemptuous pity of remote predecessors, great men respect them; Harvey and Newton deeply respected men whose conclusions they disproved; they recognized their peers.

These reflections are suggested by a perusal of Sir Charles Sherrington's monograph on Jean Fernel,[1] the shadow of a name to most physicians and physiologists of our time. It is a model of how one great man appraises another. Fernel was the first writer to entitle a treatise *Physiology*; we may call him a physiologist, although to his contemporaries he was primarily known as a wise physician. Between a Fernel and a Sherrington there is a great gulf set; it is not only that a physiologist of the 20th century knows much that was unknown and unknowable in the 16th century; there is a spiritual difference. As an individual human being Fernel was, if possible, as modest as Sherrington (who, in his exposition of what all the world now believes about the central nervous system, never even hints how much of this knowledge the world owes to him). Though his undergraduate career was successful, Fernel was dissatisfied with himself and determined to become better acquainted with the old masters of philosophy and science; geometry attracted him—as it had attracted Galen 1,300 years before—and his first book, published when he was 30, was mathematical. Three years later he graduated in medicine, in 1530. At first Fernel may have thought that in astrology—which made a subtle appeal to both the logical and emotional sides of the human soul—he had the key of medicine. But, just as his intellectual honesty had earlier led to doubt of the sufficiency of what we perhaps should call pre-clinical medical training, so increasing experience of clinical medicine made him doubt the value of judicial astrology, and his *Physiology*, published in 1542, is "altogether restrained as to astrology." The time was to come when he "condemned astrology utterly, with its genitures and divinings invented from the stars by the superstitious, and giving predictions of I-know-not-what portents and falsehoods."

But though Fernel was, as an individual human being, humble, he did share the intellectual arrogance or, perhaps it would be better to say, confidence of the Greeks that thinking could solve all the problems of Nature.

"Physiology in the treatise of Fernel is an orderly, logically constructed subject, so rounded-off that few loose ends remain to it, and hardly a growing-point. It is suspiciously complete. The four elements by their four qualities introduce the temperaments, the temperaments invite the humours, the coctions presuppose the organs, the organs require the spiritus, the innate heat demands the heart, the faculties consummate the occult, and are themselves consummated by—crowning concept—the 'life-soul,' the *anima*. In result, that which was to be demonstrated is demonstrated, Q.E.D. Contrasted with this self-contained theorem, the physiology of to-day appears a thing of patches, ragged, untidy, fringed with loose ends, amorphous, confessing uncertainties, but, on the other hand, bristling with facts and growing-points. And, by comparison with Fernel's, how versed in Nature, how capable in daily life, how relatively effective in the sick room!" In fact, "The system which Fernel unfolded was logical but artificial, too humanly logical to resemble Nature."

Fernel, though a humbler individual than Galen, did have Galen's pride in the intellect of man. To Galen, the apostle's dictum that "the foolishness of God is wiser than men: and the weakness of God is stronger than men" would not have appealed even if for "God" one read "Nature." Yet Galen did write of the creative power of Nature:

"Aristotle dealing with this very subject, wondered whether there was not a beginning more divine, something greater than just heat and cold and moist and dry. Wherefore I think it wrong of men to draw such rash conclusions in matters so great and assign to the qualities alone the power of shaping the parts. It is possible that these are nothing more than the instruments and something else the master-hand."

There is no doubt that, in his practice, Fernel gave more weight to practical experience than theory. This, according to his pupil and house-mate Plancy, was his view of how one should become a physician:

"After a thorough grounding in the principles and elements of philosophy, to learn straightway from some terse and well-written medical précis such details as have to be known of the nature of the human body; then to master the flavours, powers, and virtues of medicaments simple and compound; and then to learn to distinguish the signs and symptoms of the several diseases and their causes, and to gather these together, as a store within the memory; then, finally, to follow, long and attentively, the art of practice of some elderly practitioner, capable and experienced in treatment, and to observe in the sick patients themselves what you have read in the books and heard in the lecture-room. He held that there was much in the theoretical part of medicine which could not be explained truly, nor understood, except by way of long practice and experience. He judged that no one can get through on books alone, numerous although books are. The best instructors in medicine were, in his view, practice and experience; they clear up the obscure and equivocal which so embarrass and obstruct the beginner, and they fortify him."

Fernel, who had for years eluded his king's desire to have him physician-in-chief, had yielded in 1556 and was in attendance on Henry in the campaign against the English; he returned to Fontainebleau after the fall of Calais on Jan. 8, 1558; in the early spring his wife fell sick of fever and died; he soon fell sick, and died on April 23. He was probably 61. Perhaps enough has been said to encourage a reader to obtain Sir Charles Sherrington's monograph, although nothing has been said of the scholarly care with which the author has verified every detail, in a way which would have been creditable to a young historian at work in peacetime.

M. G.

[1] *The Endeavour of Jean Fernel.* By Sir Charles Sherrington, O.M. Cambridge University Press. 16s.

EARLY MEDICINE IN ASSYRIA AND BABYLON

La Médecine en Assyrie et en Babylonie, by Georges Contenau (Paris: Librairie Maloine). This book deals with the dawn of medical civilization. Little is known of this period (4,000 B.C.) of the Assyrian and Babylonic regions, for up till then writing had not been invented. By the third millennium history made its records of the political struggles between Sumerians and Semites on cuneiform clay tablets. The second and first thousand years B.C. saw much rivalry between these two kingdoms, and it is chiefly this period which Dr. Contenau describes in all its aspects, including the famous Hammurabic code of Babylonic law. It is interesting to note, even then, the distinction made between medicine and surgery. State medicine under this code flourished throughout the land, though, under the system of theocracy, medical men were sacred until they began to practise surgery, which then brought them into the code. Medical secrecy was insisted on: "to repeat to the King what a doctor has been told, even under oath, is punishable by death."

Minor surgery was practised by barbers. Much palaeo-ethnological work done by Keith, Buxton, and other British scientists has proved, by craniology, the racial differences between Occidental and Asiatic peoples. The two leading types were dolicocephalic and brachycephalic, but transitions between them have also been found in mummies and other remains. Physiology was non-existent; the heart was believed to be the seat of the soul, and the kidneys of bodily vigour; the liver was concerned with the emotions and was also the seat of life. In the list of foods used by these early races (3,000 B.C.) we see they are similar to those eaten by the fellaheen of to-day.

Dr. Contenau, who has already written thirteen books on Oriental antiquities, has brought his wide experience and powers of clear exposition to make this a useful and readable volume on this particular subject.

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SAMPLE SURVEYS

The growth of the modern State since the development of the industrial revolution, to go no further back in time, has led, and now almost daily leads, to a further and further extension of State control over our habits and actions. The political hue of the Government in power may dictate the degree of control which is regarded as desirable at a particular point of time, but, whatever the hue, it seems inevitable that authority, both central and local, will legislate increasingly on a wide range of subjects which affect all citizens, or sometimes a particular class of citizens, throughout their daily lives. That being the situation, whether we like it or not, it is certain that the better informed these authorities are the more appropriately will they frame their laws and regulations. It will be of benefit to them to know what the man-in-the-street and the housewife in the home think of their plans, though good government must often guide and lead rather than follow public opinion. Of still greater benefit will be factual information bearing on the proposed line of action; without such knowledge State direction will not only frequently fail but will damage rather than assist the society it governs. One of the difficulties in the modern State is to secure this information over the vast range of subjects involved. There is a limit to the census technique, whether it be a census of population, production, or distribution. Such methods to cover the whole population can be employed only at relatively wide intervals of time, some 5 or 10 years, and the amount of information that can be demanded of the form-filler must not go too far. A still stricter limit should be laid upon the present popular habit of distributing questionaries from the hundred and one interested parties to the ten thousand and one uninterested.

The modern development is, therefore, turning more and more towards the sample survey in which a trained interviewer, emulating the Ancient Mariner who "stoppeth one of three," approaches a randomly selected sample of the population and extracts the required information by a series of ingenious, and sometimes ingenuous, questions. Experience shows that up till now this method is successful in so far as refusal to take part in an inquiry is limited to some half per cent. of those approached, whereas up to 50% may consign a questionary to the waste-paper basket and thus vitiate the returns. But, clearly, too wide a development of this relatively new technique may lead to an increasing revolt on the part of Mr. John Doe and Mrs. Richard Roe, and the third or fourth earnest seeker after truth will be told what to do with his or her form and not always politely. There is need, as P E P stresses in a recently issued broadsheet,[1] for co-ordination in this field, co-ordination between Government Departments, between the central and local authorities, and between these and scientific and social institutions, university departments, and commercial organizations. Without such co-ordination there is bound to be not only an overlapping of inquiries and much wasted effort, but a cluttering up of the field with technically inefficient investigations and with conflicting results due to a lack of agreed definitions and methodology. There is, however, no doubt that in this sampling of human populations for the purpose of obtaining factual data and, rather more doubtfully, opinions lies an important development of social and statistical work in the next few years. P E P's broadsheet is, therefore, a timely and valuable discussion of its problems.

Initially, it defines the Social Survey as an objective and unbiased investigation of habits, environment, or views of a group of people (in total or a sample) through investigators going to the people themselves, in their homes, workplaces, or elsewhere. Two fundamental points are rightly stressed: the selection of a sample that is representative—not at all an easy task in practice; and the framing of questions to which the answers will in the main be trustworthy—an even more difficult job. In both these aspects fundamental research is urgently required: for example, how far the opinions of the interviewed, or even their apparently factual data, may be distorted by the technique of the interviewer or emotionally coloured through his, or her, own opinions on the subject. There is, indeed, already some evidence that this is a factor to be watched and guarded against if true objectivity is to be attained. Obtaining an originally unbiased sample may sometimes be relatively easy, sometimes very difficult, sometimes quite impossible. For instance, a good sample of men serving in an R.A.F. command might well be based upon the fact that each man has an individual number. A sample of 1 in 10 might, therefore, be extracted by merely taking those whose numbers end in the digit 6, or 1 in 100 by taking those whose numbers end in 66. To secure a sample of 3,000 from a population of 45 millions is not nearly so simple. It is usually based upon a choice of "representative" areas of the country in their correct proportion and then a random selection of persons within each. Research into this methodology is needed. Practical difficulties continually arise in samplings of human populations.

Another factor to which P E P draws attention is memory. To what extent will the interviewed accurately recall the event to which their cross-examination is being directed—for instance, their sickness experience in the past months, the age at which their children were immunized, their breakages of domestic crockery over some interval of time? All this needs much thought and the introduction of checks for the consistency and "reasonability" of the data. P E P is, perhaps, a little optimistic in affirming that most people can describe correctly what they have eaten in the previous 24 hours, and that the housewife can remember to a few days when the supply of milk was

[1] *The Social Use of Sample Surveys.* Broadsheet No. 250; 1s. 10d. including postage, from P E P, 16, Queen Anne's Gate, S.W.1.

cut, although it happened three months previously. Again, there is scope for research and the accumulation of accurate evidence to justify such assertions.

Much of the broadsheet is given to a useful account of the Government's wartime developments in this field through its Wartime Social Survey. With a large field staff and relatively small headquarters staff for the analysis and reporting of the results, it has been continually, and to a large extent successfully, active on behalf of Government Departments. To take a few examples: it has studied the impact of propaganda upon the population—e.g., the kitchen front, diphtheria immunization, venereal diseases, and "coughs and sneezes spread diseases." For the Board of Trade it has kept a continual eye upon clothing needs and shortages, and the supply of various household goods and demand for them. On behalf of central and local authorities it has made surveys of housing problems, lighting and heating, and the planning of estates. Other important subject-matters include an inquiry into the occupations of old people, journeys to and from work, the social dislocation due to aerial attack, road accidents, and a monthly index of national morbidity to supplement the mortality data upon which our evidence of the health of the nation is to-day principally based. All such work has been based upon samples of the whole population. Much of it is clearly devoted to *ad hoc* inquiries, some limited to the war conditions; but with increasing Government intervention there is likely to be more rather than less of them needed in future, and, as already said, an urgent need for deeper research into the foundations of the method and its various characteristics. Given more freedom to carry out this research, there is a strong case, as P E P urges, for the permanent retention of this Governmental Survey Unit, not necessarily with a monopoly of Government work, and to a large extent carrying out its tasks in close collaboration with other organizations—learned societies, universities, and other institutions. By the publication and open discussion of its results (so far hardly attempted) a higher standard of work will be achieved and the use of more efficient techniques be introduced. Government assistance is essential because wide-scale inquiries, necessary to ensure satisfactory sampling, are expensive and time-consuming.

To those who object to samples it should suffice to point out that many of our beliefs and conclusions must be necessarily based upon them. The cost-of-living index is derived from a sample of working-class budgets; dietary studies are made on a sample of families (and not at all likely to be representative); the efficiency of a method of treatment is judged upon a sample of patients, and so on. The problem is to get the right sample. Even at its lowest the Social Survey may achieve the success of the U.S.A. Office of War Information, which, P E P reports, numbered among its noblest ventures the demonstration that a new income-tax form was incomprehensible to a substantial part of the public. "As a result of this survey a new form was devised which everyone could understand"—certainly no mean achievement—"and the Treasury gained millions of dollars from the increased revenue." This at least should touch the heart, and pocket, of the Chancellor of the Exchequer, and ensure the future of the Social Survey and the right development of its techniques and uses.

PENICILLIN: D-DAY TO VE-DAY

Under the title *Penicillin Therapy and Control in 21 Army Group* there has been published in book form[1] a series of 60 individual reports on the use of penicillin for treating wounds or disease, all based on experience on the Continent between the landing in Normandy and the end of the war with Germany. Those dealing with wounds are the product of a planned investigation organized by the consulting surgeon, Brig. A. E. Porritt, and the adviser in penicillin and chemotherapy, Lieut.-Col. G. A. G. Mitchell, which sought answers to 17 specific questions. Readers interested in the surgery of trauma will find a wealth of material here, including masses of statistics, from which to draw their own conclusions about how to combat sepsis. There is general agreement that penicillin was more effective than any of the "contrast agents" (chiefly sulphonamides and acridines) in preventing wound infection, and most surgeons credit it with an important share in the vastly improved results obtained in this campaign, though rapid evacuation, resuscitation measures, and first-class surgery are also largely accountable for them. How good these results were may be gathered from a table in an appendix giving the mortality of different types of wound, based on almost complete returns for the whole campaign. Among 50,201 casualties the deaths totalled only 2,564, and in many categories, including most open fractures and joint injuries, the recoveries were over 99%. It seems also to have been fairly generally agreed that combined sulphonamide treatment added little if anything to the protection obtainable with penicillin. Most surgeons found the clinical condition of the wound a better guide to treatment than a bacteriological report, and were willing to do without this. An interesting feature is the improved results obtained in abdominal wounds: it was doubtless a mistake to regard penicillin as inapplicable to wounds involving the bowel because some of the bacteria more easily cultivated from faeces are insensitive to or destroy it. If *B. coli* were in fact the chief cause of peritonitis after a perforated bowel, penicillin would be of little use in preventing or treating it, but anyone who has examined the exudate in such cases by rather more thorough methods than usual knows that many other bacteria are often concerned, some of which belong to generally penicillin-sensitive genera. There is much else to be learned from this section of the book about the technique for treating wounds involving different structures. The reader has to delve for it: there is no summary of the whole of this material, with the result that it is somewhat fragmentary and repetitive.

The medical and laboratory section contains reports on an almost bewildering variety of subjects: some of these are the treatment of venereal disease, Vincent's gingivitis, skin diseases, staphylococcal septicaemia, and Weil's disease, the distribution of penicillin in the body, its stability in various preparations, and matters of technique in administration. This is by far the most important publication on penicillin since the special number of the *British Journal of Surgery* devoted to it in 1944, and makes public for the first time a mass of Army experience previously available only to those with access to confidential reports. Its interest has

[1] Published under the direction of the Director of Medical Services, 21 Army Group. 1945.

not ceased with the end of the war, for surely there are lessons here which should be applied in civilian practice? Penicillin will now be used with increasing freedom for preventing sepsis after injuries of all kinds. Perhaps the most important question in this connexion is one which this book does not answer: is it possible to achieve good results by the simple and economical method of local application? There were indications in much earlier Army observations, including those made in 1943 by Cairns and Florey, that early penicillin powder treatment reduced the frequency of sepsis. The applicability of this method to civilian casualty work seems a subject worthy of study.

HEREDITY IN EXOPHTHALMIC AND NODULAR GOITRE

It has from time to time been pointed out that heredity may be a factor in the causation of goitre, though little seems to have been done in the way of large-scale or systematic studies. A recent paper by Martin[1] is therefore particularly welcome. His series is relatively large and he is able to put forward a plausible genetic hypothesis which can be readily tested in future investigations. He classifies his cases into two groups: (1) primary exophthalmic goitre; (2) nodular goitre, whether toxic or non-toxic. He argues that toxic and non-toxic nodular goitres alike arise from simple colloid goitres, that it is sometimes difficult to separate toxic from non-toxic cases, and that thyrotoxicosis may supervene at any time in the possessor of a nodular goitre. This broad distinction certainly appears to fit the genetics of these conditions and is largely responsible for the relatively clear-cut results.

The sample included 90 cases of primary thyrotoxicosis and 111 cases of nodular goitre. The striking finding in the former category is that there is a definite familial incidence—i.e., affected sibs occur much more often than affected parents or children. This points to the action of a recessive gene. Inquiries were not made as to consanguineous union among the parents. It is unlikely, however, that much would have been revealed; in so common a disease the excess of cousin marriages would be small and very large numbers would be required in order to demonstrate it. It is suggested in a genetical note by R. A. Fisher that there is strong evidence for a single recessive gene favourable to the disease, and perhaps necessary for its occurrence, and that, if this is the case, of those potentially abnormal about half the females and a quarter of the males actually develop the disease. Primary exophthalmic goitre is now widely considered to be a psychosomatic condition and not primarily a disease of the thyroid gland. The well-known role of mental shock, infection, and so forth in precipitating the disease could be fitted into this genetic scheme, for something is needed in addition to the genetic factor before the disease can become manifest. A recessive factor with a frequency of manifestation in women of 70% to 80% is also the hypothesis of Bartels, whose work is quoted by Martin in an appendix. Bartels' survey was made in Copenhagen, and is, in Martin's opinion, somewhat complicated in interpretation by the grouping together of primary and secondary toxic cases.

It is possible that the hypothesis may turn out to be too simple. One difficulty in Martin's figures is the peculiar sex-ratio of affected persons among the sibs of the original cases. The sex incidence of toxic goitre is well known. The Registrar-General's figures for deaths show a constant ratio of 7 or 8 women for every man. This is also true of morbidity. Julia Bell[2] found almost exactly seven to one in a sample of some 1,200 hospital in-patients. Martin's original index cases show just the same sex-ratio, yet among the sibs affected men are nearly as common as affected women. The discrepancy is highly significant and raises the doubt that there may be something peculiar about his sample.

The incidence of thyrotoxicosis is affected by race. An admirable and detailed study by McEwan[3] gives the distribution of deaths in 1936 for England and Wales. It was pointed out by Fraser Roberts[4] that McEwan's maps bore a startling resemblance to ethnographical maps showing stature, brunetteness, and the like. He showed that the correlation between McEwan's figures for counties in 1936 and the "index of nigrescence" in Beddoes' *Races of Britain* of 1885 was no less than 0.42. It may be that the recessive gene is commoner among the Celtic peoples of these islands, or perhaps it is the frequency of manifestation which is different. Either result would appear somewhat unusual, though by no means impossible.

The distinction between primary thyrotoxicosis and nodular goitre seems largely justified, though on the figures presented it is not perfectly clear-cut; moreover, the sex-ratio is just the same as in toxic cases. In nodular goitre there is no suggestion of a familial incidence. Affected relatives of all kinds are commoner than in the general population, but in view of the complexities due to such factors as iodine deficiency, Martin hesitates to conclude that his results provide any evidence in favour of a genetic basis for this variety of goitre.

The results of this study are suggestive rather than conclusive. They have the great merit of pointing the way to future studies on a larger scale.

OESTROGENS FOR PROSTATIC CANCER

That oestrogens improve the lot of certain patients with carcinoma of the prostate is now well established, but little is known of the manner in which the hormones influence the neoplastic tissue, or of the process of retrogression which the tumour undergoes, and no exact measure is available for assessing the effect of therapy. Schenken, Burns, and Kahle[5] recorded histological comparisons of material removed from malignant prostates by repeated transurethral resection during the first two months of treatment. Fergusson and Pagel[6] have correlated the clinical and biological findings with the histological progress of the disease as illustrated by serial biopsy over periods of six months to two years.

Not all cases of prostatic cancer are suitable for an investigation of this character. Some patients are too ill to permit serial biopsy and others are too well to require it. Fergusson and Pagel's necessarily small series is thus not free from the defect of selection. They studied five patients; four were treated with stilboestrol and one with dienoestrol, and all were subjected to repeated transurethral resection by the Gershom-Thompson cold punch. On each occasion the material resected was studied histologically. Progressive alterations in the architecture of the tumour are shown by tables, graphs, and photomicrographs. The cytological changes included (1) a progressive reduction in the number—and usually also in the size—of tumour units per square millimetre, (2) pyknosis, (3) concentration of nuclear chromatin, and (4) a reduction in nuclear diameter. The first and last of these effects can be mathematically expressed and may be used to measure the effect

1 *Quart. J. Med.*, 1945, **14** (new series), 207.

2 *Ann. Eugenics*, 1940, **10**, 370.
3 *British Medical Journal*, 1938, **1**, 1037.
4 Ibid., 1938, **1**, 1174.
5 *J. Urol.*, 1942, **48**, 99.
6 *Brit. J. Surg.*, 1945, **33**, 122.

of oestrogen therapy, provided the sections are removed always from the same locality and provided the effects of repeated trauma can be neglected. Fergusson and Pagel claim to show only that regressive histological changes are a fairly constant accompaniment of oestrogen therapy—in none of their five cases did carcinoma disappear from the samples of tissue removed. They concede that in other patients, whose favourable progress excluded them from the series investigated, a complete resolution of symptoms may have been the expression of "cure," but they demand more direct evidence of this favourable result than is at present available.

The same authors regard the level of the serum acid phosphatase as the most valuable measure of the efficacy of the oestrogens in any individual case of prostatic cancer. The persistence of an elevated serum acid phosphatase, despite massive doses of oestrogens, suggests that prostatic epithelial activity remains unchecked and the histological picture correspondingly unaltered. The degree of elevation of the serum acid phosphatase represents the general activity of all deposits of tumour, both primary and secondary, for the phosphatase content of resected fragments of prostate bore no constant relation to the serum value. Fergusson and Pagel have shown that the response of prostatic cancer to oestrogen treatment offers a broad opportunity to the pathologist no less than to the surgeon and the chemist. The next phase in our growing knowledge of cancer may well centre in the prostate. The histological nature of tumour regression, until recently one of the rarest of pathological phenomena, is transcended in interest only by the chemical process which brings about regression. It is fortunate that a disease which so invites repeated histological study should, almost alone among tumours, sometimes require repeated biopsy as a standard method of treatment.

DECORTICATION IN ACUTE EMPYEMA

An advance in surgical treatment that has emerged from the war is the use of decortication in the management of clotted haemothorax and of infected haemothorax. If ineffective conservative treatment is continued in these cases the time spent in hospital may be long, and permanent disability may ensue. A covering of organized exudate prevents the lung from expanding, and a fixed contracted chest with crowded ribs and severe scoliosis result. By decortication the lung is freed and can be made to fill the chest completely, or only a small residual space is left which can be obliterated by a few days of post-operative suction. Healing is achieved in most cases in a short time, and a virtually normal chest results, the severe crippling of a "frozen" chest, or of total thoracoplasty, being avoided. The importance of decortication in haemothorax has been stressed by Lush, Nicholson, and Stevenson,[1] by d'Abreu, Litchfield, and Hodson,[2] and by Barrett.[3]

Price Thomas and Cleland[4] have given a detailed account of the management of these cases, and have applied the same principles to the treatment of other forms of acute empyema. For most cases orthodox methods of drainage suffice—namely, drainage by rib resection, removal of all fibrin clots, and encouragement of lung expansion by proper breathing exercises and early mobilization of the patient. There are two conditions, however, in which chronicity threatens: total empyema in which the upper lobe is often not only unexpanded but has fallen down over the lower lobe; and multilocular empyema. Decortication can prevent this and lead to healing in a very short time. Open thoracotomy is essential, either by resection of a long segment of a rib or by a long incision in the sixth interspace. Intratracheal anaesthesia is needed, and a blood transfusion must be given during the operation. Decortication in acute empyema may be more difficult than in clotted haemothorax, and may be accompanied by much oozing. The whole lung, including the interlobar fissures, must be freed and by positive pressure must be made to fill the chest, which is then closed with a basal and an apical suction catheter. Sanger[5] prefers to use two anterior and two posterior suction catheters, which can be removed in two to four days.

Penicillin has made this procedure possible in severely infected cases. Even so, as the operation is a severe one it is unsuitable for many patients with acute empyema who are in poor condition, toxic, and wasted. In most cases of simple posterior basal empyema it is quite unnecessary, but it should be borne in mind in every case of total empyema or of empyema complicated by multilocular cavities, in which it offers prompt relief to what can otherwise be a long and disabling illness.

[1] *Lancet*, 1944, **2**, 467.
[2] Ibid., 1944, **2**, 197.
[3] Ibid., 1945, **1**, 103.
[4] Ibid., 1945, **1**, 327.

PARIS CLINICAL ASSEMBLY

A three-day meeting under the auspices of the Faculty of Medicine of Paris was held recently at the Hôpital Broussais to discuss recent developments in medicine. In addition to a large attendance of French doctors, visitors were present from Great Britain, Belgium, Holland, Switzerland, and Czechoslovakia. It was stated to be an occasion for the resumption by French medicine of its traditional role in the diffusion of medical knowledge. The sessions were presided over by, among others, M. Leveque, Director-General of Public Assistance, M. Duhamel, of the French Academy, M. Marx, representative of the Service of Cultural Relations of the Ministry of Foreign Affairs, and M. Paul Rivet, representing the Municipal Council of Paris. The expositors were, in the main, members of the Paris Faculty. At the first session problems of endocrinology were discussed, especially in relation to the female generative organs, also the value of synthetic oestrogens and of subcutaneous hormonic implants. After this came an exposition of recent work on hyperthyroidism and the favourable results obtained on the thyroid of recent synthetic products. The extension of knowledge concerning vitamins was also discussed, and the session ended with a survey of the refinements to which the radiological diagnosis of gastric carcinoma can now be carried. The second day was devoted to renal physiology and pathology, the indications for nephrectomy in states of arterial hypertension arising from a unilateral urinary lesion, and the study of the function of the liver, with the effect of benign or malignant hepatitis, without cirrhosis, in causing a generalized oedema. The third day was largely taken up with a discussion of the value of arsenical compounds and of the sulphonamides in the treatment of syphilis. Penicillin also came under review, and some warnings were issued against excessive enthusiasm. A demonstration was given of the success of skin grafting in extensive third degree burns, in which the healing process was aided by penicillin or the sulphonamides. The important discovery of the Rh factor in the blood was the subject of a further exposition. Electrocardiographic technique and modern methods of dealing with the psychoses were also on the programme. Dr. Pasteur Vallery-Radot, professor of clinical medicine of the Paris Faculty, who was largely responsible for the gathering, summed up the results of the three days' deliberations.

[5] *Surg. Gynec. Obstet.*, 1946, **82**, 71.

PSYCHIATRIC CASES REFERRED BY AFTER-CARE OFFICERS IN REGION 7

BY

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Of 130,312 Army cases diagnosed as neurosis or psychopathic personality 26,275 were discharged to civil life, as against 445 out of 7,925 psychotics (Rees, 1945). Another 100,000 neurotics are in process of demobilization. What is their after-history?

In the last two years 20 ex-Service men and women have been referred to me by the after-care scheme organized by the Provisional National Council for Mental Health in conjunction with the Board of Control. These patients, of course, represent only a small number of the total cases dealt with by the regional after-care officer, and are a mere fraction of the number of cases referred for psychiatric advice to other psychiatrists. But some common features which seem worthy of consideration emerge when the group is studied as a whole.

The personnel referred can be classified on the basis of their illness into four categories—organic nervous disease, psychosis, neurosis, and psychopathic personalities.

Organic Nervous Disease : Psychotics

There was one organic case—that of a man of 39 who was epileptic. The need for further advice in his case, however, arose out of a complex of social factors.

Five of the patients were psychotic cases. The disposal of these cases from the Army seems to depend on a decision of the relatives. They may be sent to a civilian mental hospital or be discharged to the care of their relatives. Brig. Rees (1945) gives the following figures for disposal of psychotic Service men from the Army:

To Duty	To Civil Life	To Care of Relatives	To Civil Mental Hospitals	To Other Hospitals	Died
7·4%	26·9%	38·5%	7·5%	15·0%	4·7%

It is to be expected that a number of these patients, the majority of whom are discharged to the care of their relatives, should turn out to be a greater responsibility than their families could tackle.

Psychotic Cases

	Age	Illness	Disposal
W.A.A.F.	25	Depression	Voluntary patient civilian mental hospital
Private	31	Schizophrenic	Left home town
R.A.F. cadet	23	Paranoia	Certified
Private	30	Paranoia	Unemployed
Gunner	29	Depression	Mental hospital

Among this group was a single man aged 31, a former teacher in a preparatory boys' school, whose case was diagnosed as a simple schizophrenia with a recommendation for prolonged analysis on discharge. This man attended for nine psychiatric sessions, but became progressively more inaccessible, and finally left his sister's house to stay with relatives at the other end of the country. It was recommended that he should enter a mental hospital as a voluntary patient.

Another single man, aged 23, an ex-R.A.F. cadet, was sent home from his training school. He quarrelled with his family, developed ideas of reference, behaved in a bizarre fashion at his place of work, abandoned his lodgings, and took to sleeping out in sheds. He was reported to the relieving officer, admitted to the observation ward, certified, and placed in a mental hospital. He suddenly burst into my consulting-room one afternoon, dishevelled and bleeding, having escaped from the hospital over a wall topped with bottle glass.

A W.A.A.F., aged 25, joined the Services in an attempt to break off a homosexual attachment. Her self-imposed cure was unsuccessful, and she attempted suicide on one occasion by throwing herself in the way of an aircraft taking off. After a stay in a convalescent home, excellent lodgings were found for her, and she started work. But she failed to make progress, and was admitted to a general hospital in a very excited condition. A course of continuous sedation relieved her, but she failed to settle down at work on discharge from hospital, and at her request was admitted to a mental hospital as a voluntary patient.

A man who was a misfit in his previous occupation found service in the Army a partial solution to his difficulties, but on his discharge could not bring himself to face returning to his old post. In spite of the greatest consideration by his employers, he developed an elaborate system of ideas of reference and persecution. Certification will probably be necessary.

Psychopathic Personalities

There were 3 patients who could be classified under this heading.

One was a young man, aged 22, who, after failing to gain the school certificate three times at his public school, volunteered for the Fleet Air Arm and failed twice in navigation. He joined the R.A.F., was selected as a cadet, but again failed twice in navigation. He tried to join the Army with the idea of obtaining a commission, but was advised against this. He then tried to join the Royal Navy, still hoping for a commission. On his discharge from the Services he applied for a grant for training in medicine. His attitude was completely egotistical, and each effort was concerned with his own social promotion—a fact which he admitted quite openly.

Another man, aged 26, an only boy of elderly parents, had noticed his homosexual tendencies before joining the Army. Life in the Services exaggerated his conflict, and he was discharged. Though of good physique, he abandoned jobs found for him by the Labour Exchange which involved some physical exertion, and wanted to be placed as an assistant in a draper's shop.

Another man, aged 22, had six jobs after leaving his private school; he joined the R.A.S.C., and staged an accident when in France in order to get back to England. He boasted to me of his successful malingering. While still in the Army he married a girl against her parents' wishes. Since his discharge from the Army he has had six different jobs. He has shown no consideration for his wife, knocks her about, and grumbles at the struggle involved in providing for his baby.

Neurotics

The remaining 10 subjects can be classified as neurotics. Eight of them had entered the Services with severe conflicts unresolved. Of the remaining two, one had broken down after severe combat experience, and the other was severely disturbed by his failure to obtain a pension. Their conflicts had been chiefly based on the usual adolescent problem of detaching oneself from the home, adjusting to the opposite sex, and finding a satisfactory outlet in work. In several cases all three main problems were involved.

Only one case appeared to be precipitated by combat stress. This was that of a naval rating who had an alarming experience when he fell between two ships and was in danger of being crushed. Subsequently, at the invasion of Sicily, he was serving on a battleship in a position high up on the superstructure, and saw his friends serving in an A.A. battery below him killed by a bomb from an enemy aircraft. He was discharged from the Navy and returned to his job as cinema operator. But in the projection chamber, high above the audience, he was in a similar position to that in the traumatic episode, particularly when the sound track was reproducing noises of gunfire and bombs, and it was not surprising that under these conditions he broke down again.

The man who suffered from a "compensation neurosis" was a sergeant in the paratroops who had joined the Army from an orphanage at 15½ and had been transferred to the paratroops. He made one drop with a faulty parachute, and fell 500 feet into a ploughed field, landing on the buttocks. He developed a severe rectal haemorrhage, and was subsequently operated on for what was described as a rectal polyp. The operation left him with a discharging fistula. At the Pensions Board, "attributability" was denied, and his appeal was dismissed. He was very resentful about what he naturally considered a raw deal.

Of the remaining 8 subjects, 3 had joined the Services, driven unconsciously to satisfy their underlying conflicts.

One, an officer in the R.A.F., was afraid his father would put him into the family business when he left his public school. A casual encounter with a squadron leader took him to the Air Ministry, where he applied for training. He enjoyed the life in the Service, and, as he put it, if he could not fly there was no sense in living. He rarely went home on leave, and was miserable when "grounded." He developed psychosomatic symptoms, tried to mask these by heavy drinking, and was eventually discharged after an interview with a psychiatrist. Since his discharge he has turned down 117 jobs, and still sees no way of coping with reality except by "flying" away from it.

Another man, aged 25, the only earnest and conscientious member of an easy-going, happy-go-lucky family, deliberately joined the

Infantry in order to test himself out. The rest of his family managed to stay civilians as reserved men and women. But by the fortunes of posting in the Army he time and again missed actual combat service, and his repeated frustration and disappointment resulted in an anxiety state. Since his discharge he has become engaged, but evidently regards this as another test situation.

Finally in this group, a trooper, aged 32, was forced into trade by his father when he left school. He always had an urge to go abroad and travel, but was rejected when he tried to enlist in the Navy. He had a breakdown after his parents had interfered with his friendship with a girl, and joined the Merchant Navy. After a year he returned home, but found it hard to settle down. He volunteered for the Army, and would have liked to go over-seas, but was retained in England as an instructor. Once more he tried to get away over-seas, by volunteering for the N.A.A.F.I., and when this was refused he developed effort syndrome and was given a job as a civilian in the N.A.A.F.I. Here he felt "cooped up," and tried to rejoin the Army or the Merchant Navy to get abroad once more. He was successful in being retransferred to the Army, but six months later was no happier, as he was still in England.

Another group of neurotics was illustrated by 3 young men, who were emotionally and socially immature when they were called up, and on discharge from the Service found themselves unprepared to make any choice or decisions in civilian life.

An aircraftsman, aged 21, had been called up from the University. The medical board failed to notice his stammer, and he was posted to radiolocation in Northern Ireland. After vegetating there for more than a year he found his stammer had disappeared, and applied for a commission. He in due course had instructions to report in London, and set off cheerfully, believing he had been accepted as a cadet, to find, when he arrived in town, that he had been posted to a course in Japanese. The stammer quickly reappeared, and he was discharged. He returned home to his widowed mother, quite unable to make up his mind what to do. The mother treated him as a little boy, resumed her training in his table manners, and found him a job as a filing clerk. Analytical treatment of the stammer uncovered a series of episodes of "transvestism." When these had been discussed and dealt with he decided to read for a degree in commerce at the University, and applied himself with enthusiasm to the job.

Another aircraftsman, aged 26, had gone round with a gang when a boy. He was living at home with elderly parents when called up, was posted to the Bahamas, where he had little to do, and became very lonely. Faced with this limitation in his own resources, he became depressed, and subsequent transfer to California, where there was plenty of social life, failed to improve him. On discharge from the R.A.F. he returned home, but could not pick up old friendships, and felt that English girls treated him as an inferior. Unable to cope with English post-war civilian life, he has a vague wish to return to the U.S.A.

A mechanic from the Fleet Air Arm, aged 21, had been brought up in a Devonshire village, and was well adjusted at school, being on easy terms with both boys and girls before the war. When he left school his father found him a job in a garage just before the father was called up as a reservist. But he got on badly with his employer; he wanted "to get away," and applied for training in a Government Training Centre. City life confused and upset him, and when his course was completed he took the first job offered him in a different town, but was soon up against the landlady, who he felt favoured the other lodger. He was called up, refusing to use the reservation to which he was entitled, but in the training camp became depressed, spent some months in a Naval hospital, and found himself once more on another civilian training course. He was so used to being "parked around," as he called it, that he found himself unable to make any decisions about a job when his course was finished.

Summary

Although the majority of Service psychotics were discharged to the care of their relatives, very few of them could be managed successfully at home. In the majority of cases after-care should be directed to persuasion to enter mental hospitals as voluntary patients.

All three psychopaths were ready to avail themselves of the after-care service, but were using it as a screen to avoid further social responsibilities. It is doubtful whether an overloaded service should attempt to deal with this category.

The group of neurotics, all volunteers, had used the Services as an escape mechanism from adult responsibilities. When discharged they found themselves faced with the original unsolved problems, and all wished they were back in the Services. One succeeded in rejoining. Resettlement is unlikely to be successful in such cases without prolonged individual treatment.

Another group of neurotics are those young men who were socially and emotionally immature when called up. Service life relieved them from the need for making choices and decisions. On discharge at ages ranging from 21 to 25 they are still fixed at emotional levels of 14 to 15, and are unprepared for individual independence. Some form of group therapy and training would seem to be indicated for these, and their relatives need advice as to their necessity for further support and encouragement.

Combat neuroses are comparatively infrequent—a tribute to the prompt measures of dealing with these cases in the Services.

"Compensation neuroses" based on decisions of pensions boards naturally occur. There are bound to be "hard cases," but the impression received is that more time spent in explanation of the decisions by trained personnel would prevent a great deal of unavoidable resentment and subsequent maladjustment.

There is a grave lack of out-patient facilities for treatment, as distinct from diagnosis, of these neurotic persons. Many of these men were seen in private time, without charge, as no out-patient time was available for them.

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SCOTTISH EMERGENCY HOSPITALS

SECRETARY OF STATE'S DECISION

The Emergency hospitals in Scotland built by the Government to deal with wartime needs are to continue to be administered by the Department of Health until the National Health Service is set up. These needs now require only a part of the resources available, and the balance will be available for general hospital purposes. Announcing this decision, the Department states that "while the Secretary of State's obligations under the scheme cannot be discharged at present without substantial reservations of beds in local authority and voluntary hospitals, he is anxious to reduce these reservations to a minimum and as far as possible to restore complete freedom to hospital authorities in the selection of patients to be admitted." Voluntary hospitals may continue to arrange for the admission of patients from their waiting list to the Department's own hospitals, whose resources will also be used as at present to help local authorities to offset their statutory responsibility for tuberculous and orthopaedic cases.

The Emergency Hospital Scheme was created and developed under powers contained in the Civil Defence Act, 1939, which places on the Secretary of State the responsibility for ensuring that facilities would be available for the hospital treatment of casualties occurring in this country from enemy attack. The scope of the scheme was progressively widened to cover the treatment of Service personnel, marine casualties, evacuated persons, workers in war industry suffering from fractures, transferred war workers, and other classes.

To meet the additional needs a substantial building programme had to be undertaken. Several new general hospitals with over 4,000 beds on a peacetime standard were built and are under the direct management of the Department of Health. In determining the sites of the new hospitals attention was paid both to strategical considerations and to probable post-war requirements. 24 hospitals were extended by the erection of new annexes varying from two-ward huts (60 beds) to 40-ward huts (1,200 beds). Purely temporary accommodation was also obtained by various means, including the use of 60 large private houses as convalescent or auxiliary hospitals.

In addition to the new hospitals and the hospitals at which annexes were built, the Emergency Hospital Scheme embraced almost all Scotland's voluntary hospitals—including cottage hospitals—and a large proportion of the local authority hospitals in Scotland. These hospitals were required to keep a proportion of their beds always vacant to receive casualties or other persons entitled to treatment under the scheme. The Government made a payment to the hospital authority both for beds occupied by patients falling within the scheme and for unoccupied beds kept vacant. Thus the large bulk of the hospitals in Scotland have been linked up during the war years in a single comprehensive service under the general control of a central authority.

Special units of various types were set up in 17 hospitals, for orthopaedic work, plastic surgery, brain surgery, and many other types of specialized treatment. The units were equipped with up-to-date apparatus, and arrangements were made for the services of eminent surgeons and other specialists. Where these special units were located in the new hospitals they will now be continued for the benefit of the civilian population. The largest of these hospitals are at Stracathro, Angus; Bridge of Earn, Perthshire; Law, Lanarkshire; and Ballochmyle, Ayrshire. Others are at Killearn and at Raigmore near Inverness.

Reports of Societies

BRITISH ORTHOPAEDIC ASSOCIATION

The spring meeting of the British Orthopaedic Association was held at the Royal Victoria Infirmary, Newcastle-upon-Tyne, on May 24 and 25, under the presidency of Mr. George Perkins.

Mr. E. A. NICOLL reported upon 150 miners who had suffered fractures of the thoracic or lumbar spine, which he classified into (*a*) simple anterior wedge, (*b*) lateral marginal fracture (whose special features he defined), (*c*) fracture-dislocation, and (*d*) fracture of the neural arch. The results of simple wedge fracture did not depend necessarily upon the presence or absence of deformity. Hyperextension treatment would not promote repair of a concomitant intervertebral disk injury and was often itself a source of chronic lumbar strain; consequently he now preferred early exercises with no more restraint than bed rest.

Mr. J. K. STANGER dealt with cases of fracture-dislocation of the spine, which occurred mostly in the thoraco-lumbar and mid-cervical regions. Paraplegia was commonest with injuries at the narrowest parts. Recoverable cases of paraplegia could not be distinguished from irrecoverable, and hence reduction should be attempted. In open reduction of cases with locked facets partial facetectomy was rarely needed; and exposure might even reveal that spontaneous reduction had begun, only hyperextension being required for its completion. Although the results of open reduction in these cases with locked facets and paraplegia were exceedingly disappointing, and although closed reduction could be achieved, Mr. Stanger did not yet feel able to advocate the latter as the usual procedure. Fixation was by plaster jacket, or by plaster bed if posterior structures were fractured. Redislocation, which was frequent, did not cause recurrence of cord symptoms and was often followed by bony ankylosis. The first evidence of recovery from paraplegia might appear as late as six weeks after the injury, and the extent of delay was no measure of the prognosis. Patients with various degrees of recovery after paraplegia from fracture-dislocation were shown.

Mr. W. GRANT WAUGH gave a restrained account of his researches into the *p*H of acute and chronic joint effusions, and of his attempts to modify this by the injection of appropriate liquids. A clinical estimate was given of the results of treating the joints in osteoarthritis and rheumatoid arthritis by intra-articular injections of a solution of lactic acid and procaine of approximately constant *p*H. The injections were followed by exercises, and later manipulations, which were facilitated by the injections and formed an integral part of the treatment. Procaine solutions were not a satisfactory substitute. Mr. Waugh asked for trial of the method by others. Some present were able to report encouraging results.

Mr. K. H. PRIDIE advocated excision of the calcaneus in very severe cases of comminution and showed film strips to demonstrate the supple feet, good gait, and powerful plantar flexion power which might follow this procedure if continuity of tendo Achillis and plantar fascia was maintained. He considered that the subcutaneous fibro-fatty pad and the partially regenerated bone provided a serviceable heel. In the lively discussion which followed, the consensus was in agreement with Mr. Pridie's condemnation (following Eastwood) of immobilization of these fractures, strong in advocacy of early movement without weight bearing, but condemnatory of so drastic an operation, and particularly its performance, through a longitudinal dorso-plantar incision.

Mr. E. W. KNOWLES had found that mid-tarsal dislocation might follow either a fall from a height or a torsion injury such as that resulting from a fall with the forefoot trapped. Reduction was very insecure. Consequently he advocated transfixion of the joint with a Kirschner wire passed through scaphoid and talus and incorporated in plaster-of-Paris for four weeks.

Mr. J. B. REID had investigated the results of McMurray's displacement osteotomy of the femur in osteoarthritis of the hip and in ununited fracture of the femoral neck. Of 36 patients with osteoarthritis, 28 were completely relieved of pain. Among 13 patients with ununited fractures, union followed in 7, and one patient died.

Mr. P. H. NEWMAN, M.C., discussed the clinical diagnosis of fat embolism, which had been frequent in war injuries and, if sought, would probably be found to be correspondingly frequent in civil life. Mention was made of the psychological changes, pyrexia, tachycardia, increased respiratory rate, raised blood pressure, petechiae of characteristic distribution, fundus changes, presence of fat in the last-voided urine, and the lack of information given by the sputum. The importance of efficient splinting and transport of patients with fractures was stressed. Mr. Newman had ligated the deep femoral vein in two cases, one of which had recovered.

Mr. A. GRAHAM APLEY gave a preliminary demonstration of a test designed to aid discrimination between meniscal or other soft tissue injuries of the knee. Clinical cases shown included unilateral adolescent coxa vara (slipped upper femoral epiphysis) in father and each of twin sons (Mr. C. GORDON IRWIN), tendon transplantations (Mr. J. GILMOUR and Mr. DAVID BROWN), melorheostosis, osteoid osteoma (Dr. W. MACKENZIE), and some results of nerve suture (Mr. F. G. ST. CLAIR STRANGE).

Mr. JOHN GULL demonstrated an ingenious invalid armchair which would hoist the patient on to his legs in an upright position or conversely lower him gently into the sitting position, the power being provided by an electric motor.

SPREAD OF INFLUENZA

Opening a discussion on June 28 at the Royal Society Empire Scientific Conference at Cambridge on the spread of influenza, Dr. C. H. ANDREWES said that there were two apparently conflicting views as to the epidemiology of influenza, and both might be right.

According to one view, influenza always reached a country from somewhere else. Epidemics over here had thus been called the Russian or the Spanish or some other kind of influenza according to their supposed place of origin. Outbreaks in Britain usually lasted for at most three months, and virus A—the more important of the two known influenza viruses—might not be recognized at all in this country for the twenty-one months or so before another outbreak occurred. Was its normal existence a progression round the world, producing epidemics, passing from the northern to the southern hemisphere and back again according to season? Recorded data as to the periodicity of influenza in different parts of the world did not support such a view. Epidemics in Britain, on the European continent, and in North America tended to appear at about the same time, but there had been no discernible regular relation to those in the southern hemisphere.

The second view supposed that the influenza viruses were always with us, perhaps in the respiratory tracts of some people who were carriers, perhaps causing, between epidemics, subclinical infections or sporadic respiratory ailments. Then, after the lapse of time, the immunity of the population waned to a suitably low level, and some climatic or other as yet undefined factor set the stage for a greater or lesser outbreak. An argument for such a view was the occurrence, as in Britain in 1937, of a number of antigenically distinct variants of influenza virus A, all in one outbreak. There were, too, a number of examples on record in which viruses A and B had turned up in one and the same epidemic. Shope had made out a very strong case for believing in the genesis of an outbreak of swine influenza by simultaneous activation of latent virus in a number of separate droves of pigs.

Behaviour of B Virus

Dr. Andrewes said that he was practically convinced of the truth of this latter view of the endogenous origin of human influenza epidemics until virus B began causing trouble in June, 1945, in Hawaii and Guam. Thereafter it spread East, and epidemics—all mild ones—appeared in the next few months in the Caribbean area, the more northern parts of S. America, and in Texas. Thence a rather slower spread occurred in the U.S.A., but B was widely prevalent in that country by November. In Europe it did not appear till December, in Holland and Belgium; the peak in Britain was in January. From the Pacific the virus apparently went also southwards and caused an outbreak in Australia at what was for them an unusual time of year—November. There were two reasons for believing that

there was a true spread over the world. First, B strains recovered recently in Australia and Britain were antigenically very closely related and decidedly different from the standard B strain Lee isolated in America in 1940. Second, the disease showed rather unusual epidemiological features, and those which Burnet had described from Australia were identical with those seen lately in this country. In both countries the incidence had been very patchy, but with a high incidence in school-children and very little in adults, noticeably little in the Army. Dr. Andrewes wondered, therefore, whether the influenza viruses might not be endemic in every country, but at the same time so labile that they easily produced mutant forms sufficiently distinct antigenically from the stock to be able to infect a substantial number of people who were resistant to their endemic strain. Virulence might soon be raised and further extension made possible. Thus a country-to-country spread could be quite commonly superimposed upon endemic influenza. What had perhaps occurred during the past year with virus B might be not unlike the happenings of 1918–19, except that in contrast to the pandemic virus last year's antigenic variant of B caused only a mild disease, not readily differentiated from the local endemic influenzas.

It would not be possible to find out whether there was a country-to-country spread as a normal occurrence unless there was co-operation between countries in collecting and comparing strains from outbreaks. In every considerable region within the Empire there should be trained observers capable of collecting and comparing strains, or at least collecting and transmitting to centres where detailed comparisons might be made. The global epidemiology of influenza might be in a state of transition as a result of the enormous increase in air transport. If so, it was most important to be able to observe accurately what was happening.

Correspondence

The Hypochondriac's Treatment

SIR,—Dr. Edith Summerskill has told us that "In future no doctor need prostitute his science by pandering to the hypochondriac." Dr. Alfred Cox in his letter to the *Times* (June 14) writes: "I would rather see them making concessions to patients who mistakenly think they are ill, than being bound by the regulations which are intended gradually to make the doctor into a Civil Servant whose primary duty is not to his patient, but to his employers." Dr. Lindsey Batten (June 29, p. 999) assumes that the doctor is more free then he would be in a State Medical Service to discard the hypochondriac.

None of these authorities differentiates between the treatment of the hypochondriac's complaints and the treatment of his hypochondria. They all assume that the hypochondriac is incurable, and that the only treatment available is the treatment of his alleged symptoms. This assumption is inadmissible unless a serious approach along psychological lines has been attempted and failed.

But this out-of-date assumption is implicit in the teaching of the medical schools. Students learn "not to waste time" on the hypochondriac's symptoms; this is an excellent precept but it gets us nowhere. The hypochondriac is not a conscious delinquent to be ousted from the sphere of medical treatment and professional sympathy. He is a victim of fears he does not understand; his symptomatic figments are the result of conflicts in his personality; he is even more exasperating to himself than he is to his doctor; he needs treatment badly, even when his alleged symptoms are fatuous.

Will Dr. Summerskill tell us who is to teach the next generation of doctors the science—and art—of treating the hypochondria of the hypochondriac?—I am, etc.,

Harrow-on-the-Hill. H. CRICHTON-MILLER.

Psychology in the Child's Education

SIR,—One cannot but agree with Dr. D. W. Winnicott's forthright letter (June 29, p. 998) on the integrity of the home, and on the principle of rendering to Caesar the things that are Caesar's. But his statement on keeping children sad when they are in hospital by allowing their parents to visit them surely calls for strong evidence.

My best psychiatric social worker, a lady of some erudition and personal charm, gave me two papers to read written by London psychiatrists. She did so, obviously feeling sorry for me, in order to draw my attention to the dangers of "hospitalization." Both authors quoted at length case histories of neurotic children associated with separation of the mother at an early age for hospital purposes. But no controls were described. In argument against these papers the hospital histories of hundreds of people without gross neurosis are in existence.

I do not think there is any doubt that serious cases of psychic trauma occur in some young children going to hospital. But is not the damage done at the time of separation? Is this separation not in most cases mishandled by anxious mothers or too businesslike nurses? Should nurses not have more training on this particular point? Should the mother not receive some few minutes' coaching on how to behave when the child is leaving?

The emotional disturbance of visiting-hours which occurs in some children's wards is obvious evidence that the separation has done damage, and those physicians and surgeons who frown on parental visits are on good psychiatric ground. I would like to agree with my psychiatric social worker on her point, but until the separation of the child from its mother is more skilfully handled along tactful psychiatric lines, I would deplore the necessity of re-enacting the psychic trauma by having parental ward visits which could be avoided. Much more so would I avoid deliberately "keeping them sad."—I am, etc.,

Surrey. JOHN A. MCCLUSKIE.

SIR,—It is quite likely to be useful if doctors will give their ideas about education in its wider sense—i.e., as an education for life, because they see an aspect of life which is not accessible to the general public or to teachers. They see people during periods of emotional stress, and consequently know a side which is not usually thrown into relief. In my opinion they should confine themselves to this, for when they begin to put forward views on the curriculum they are in danger of falling into the trap of telling teachers what they already know very well. Let us therefore leave teachers to their own job and try to give them our knowledge about living people. Such knowledge can only enrich their work.

When one comes to the subject of citizenship doctors can give something, for citizens are living people, whom we know at their best and at their worst. We know something about where they triumph over adversity or fail in their citizenship. One thing stands out: we can say, and this should by now be known, that becoming a citizen is not a matter of words but is a question of behaviour. Consequently we can tell teachers that it is useless to talk on the subject unless they themselves are good citizens, whatever that may mean. We can also tell them that if they are good citizens it is only of secondary importance what they say to children.

The same kind of argument applies to teaching psychology. I myself feel confident that children would like to hear adults talking about psychology—in fact I know they do—and the deeper the better, because it is near what they experience. But we should, however, not expect that this will make them any better people. Psychology is essentially a two-way affair. To be effective in education it must express something the teacher knows and applies in his actual life, otherwise it is just hot air.

In conclusion I must return to my doubts about teaching the teachers, especially since they really do know quite a lot about children, indeed much more than most doctors. We know that our profession itself is in urgent need of education about handling children. Let us beware, therefore, that in setting ourselves up as authorities in the realm of another profession we do not lay ourselves open to the reproach of "living in glass houses."—I am, etc.,

London, N.W.1. MICHAEL FORDHAM.

Gas Gangrene of the Gall-bladder

SIR,—Mr. W. R. S. Hutchinson in his article gas gangrene of the gall-bladder (June 15, p. 915) quotes seven cases from the literature and adds an eighth, but he does not attempt to explain the rarity of this infection in cholecystitis. MacLennan was in the same quandary when he posed the question: "Why

is it that only 1% of war wounds infected with clostridia develop gas gangrene?" Quoting Gordon-Taylor and Whitby, Mr. Hutchinson shows that *Cl. welchii* are found in 1 out of every 11 cases of cholecystitis. It would be a grotesque misapprehension to assume that gas gangrene occurs in this proportion of cases. It is not strange, then, that some other cause must be found for the infrequency of this infection.

I have reported 16 cases of gas gangrene in war wounds (May 12, 1945, p. 656) and showed that clostridia could not flourish on healthy muscle, and that ischaemic or necrotic muscle was essential for the establishment of gas gangrene resulting from arterial damage or occlusion. I believe that gas gangrene of the gall-bladder can only occur when this organ is partly or wholly deprived of its blood supply. This is obviously a rare occurrence and can only be accounted for by pressure on the cystic artery, the most likely cause of which is inflammatory oedema, especially when stones are inpacted in the cystic duct. An abnormal position of the cystic artery may also be a predisposing cause. If the artery is partly occluded, it is the fundus of the gall-bladder which first becomes ischaemic, as apparently happened in this case. Should the artery be totally occluded the whole organ becomes necrotic. Once the gall-bladder is removed (as when all ischaemic or necrotic muscle is removed in war wounds) there is no cause for anxiety: gas gangrene cannot develop in the healthy muscles of the abdominal wall.

Mr. Hutchinson's statement that "Fulminating gas gangrene of the liver, following cholecystectomy, occasionally provides an unwelcome reminder of their presence" has a distinct bearing on my hypothesis. I believe it can only result from ligature or injury to the hepatic artery at the time of operation, for primary gas gangrene of the liver is otherwise unknown. Clostridia are ubiquitous. They are in our clothes, on our skin, in our air-passages and alimentary tract. They are ever in search of ischaemic or necrotic tissue, and it is only when this is forthcoming that they can do us any harm.—I am, etc.,

Hereford. R. WOOD POWER.

Jittery Legs and Burning Feet

SIR,—Dr. K. P. Hare (June 22, p. 968) appears to be interested to know when the term "burning feet" was introduced. I used the phrase first in 1911, but Strachan mentioned "burning pains in the palms and soles" in 1888 when describing a condition he called malarial peripheral neuritis, but which I later brought evidence to show was a deficiency state. Long before this, however, in 1825, a paper was read in Calcutta by J. Grierson, Esq., attached to the Arracan division of the Army, "On the Burning Feet of Natives," and the term was probably in common use even earlier.

In 1936 I collected together a number of descriptions of the affection, and in 1942 suggested that the symptom might form part of a larger neurological syndrome due to a deficiency of riboflavin and/or some closely associated factor. The work of C. Gopalan would now appear to show this to be folic acid.—I am, etc.,

London, W.1. HUGH S. STANNUS.

Black Tongue and Oral Penicillin

SIR,—With the release of penicillin for sale by pharmacists on medical and dental prescriptions, its administration will become general. I venture to predict that one of its most common uses in general practice will be in the treatment of sepsis of mouth and throat by means of lozenges and sprays. I have personally observed melanoglossia in two instances as a concomitant of such treatment, and, having heard of a third from a colleague, infer that the condition will be seen with increasing frequency. This letter is written in order to apprise those who have not yet administered penicillin as oral lozenges or throat spray of a complication of treatment which, though innocuous in itself, may occasion alarm. It is hoped that bacteriological investigation of a sufficient number of these cases will elucidate the cause of this puzzling condition.

Case 1.—A previously healthy male aged 28 reported with sore throat, hoarseness, and slight malaise of two days' duration. He was a moderate smoker (10 a day), not subject to sore throats. T. 99° F. (37.2° C.), P. 78; teeth and gums healthy; tongue clean; oro- and nasopharynx injected; tonsils moderately enlarged; R. tonsil oozing pus from several crypts; tender R. tonsillar lymphadenitis; no abnormality detected in other systems. Treatment: penicillin lozenges (gelatin base; 250 units per pastille), one to be inserted into the buccal sulcus and retained as long as possible; another to be inserted as soon as the first dissolved, and so on during the waking hours. The patient continued at work. He was advised not to smoke. No other treatment was given. *Second Day* (after 12 lozenges): T. 98.2° F. (36.8° C.), P. 72; subjectively much improved; tongue clean; tonsils settling, pus not expressible from either; lymph glands not tender. *Third Day* (after 9 more lozenges): Feels quite well; T. 97.8° F. (36.5° C.), P. 72; tongue lightly coated with yellowish fur; tonsils clean; R. tonsillar lymph gland palpable but not tender; oro- and naso-pharynx normal. Treatment discontinued; patient discharged cured. Total number of lozenges administered 21. *Fifth Day:* Reported with "black tongue." The tongue was covered on its dorsal surface with a dark-brown fur. The edges and tip were clean and normal. The coat was thickest posterior to the circumvallate papillae and in the median sulcus anteriorly; it faded towards the tip and edges. The colour was most intense, indeed quite black, where the coat was thickest—i.e., in the median sulcus and on the posterior surface; these places looked like worn black velvet, the "pile" being about 1/8 in. (3 mm.) in length. The edges of the coat were a dark brown, and the whole tongue had a moth-eaten, furry, velvety appearance. It was covered with a mushy brown detritus which left a dark-brown speckled stain on gauze; its removal did not materially affect the appearance of the tongue. Apart from the tongue, there was no abnormality on examination. There was no malaise, no fetor, no unpleasant taste, and no dyspepsia. He admitted recommencing smoking yesterday. He denied the use of mouth-washes or the ingestion of coloured confections; he had not sucked Brompton or other liquorice lozenges; he had drunk strong tea, but this was his normal practice. He was reassured; no treatment was advised, and he was kept under observation. *6th to 10th Days:* No appreciable change. *11th to 16th Days:* Gradual thinning and disappearance of the fur from the lateral edges medially. The last area to clear was in the median furrow for about 2 cm. anterior and posterior to the circumvallate papillae. *18th Day:* The tongue presented a perfectly normal appearance. He had remained symptom-free throughout. He had never suffered from the condition before. There was no family history of melanoglossia.

Case 2.—Male aged 31; reported with sore throat and dry, irritating cough following a "cold in the head, which always goes to my chest" three days previously. T. 98.2° F. (36.8° C.), P. 72; oro- and nasopharynx injected, dry, and glazed; tonsils absent (removed at age 23); tongue, teeth, and gums normal; other systems revealed no abnormality. Treatment: penicillin pastilles as for Case 1 (gelatin base, 250 units per lozenge) and penicillin throat spray (250 units per ml.), inhaling deeply with each squeeze of the bulb, six squeezes half-hourly during the waking hours. No other treatment was given. He was advised not to smoke. All symptoms and signs had subsided after two days and treatment was discontinued (number of penicillin lozenges 19). Two days later (i.e., four days after commencing penicillin therapy) he reported with a heavily coated dark-brown tongue which, by the next day, was similar in every respect to that in Case 1. He had not smoked, gargled, nor used a mouth wash. He had sucked no coloured confection. He presented no sign of syphilis or other disease. There was no fetor, dyspepsia, or unpleasant taste, but he had suffered some embarrassment from facetious comments from his acquaintances. The condition remained *in statu quo ante* for five days and then rapidly regressed. Sixteen days after his first reporting, his tongue had regained normality.

There was no connexion either socially, geographically, or in type of employment between the two cases. Bacteriological investigation was not possible in either case, as laboratory facilities were not available. "Black tongue" receives scant mention in the standard medical textbooks. Dermatological reference books describe two types (true or idiopathic, and false or pseudo) of black tongue (syn.: melanoglossia, lingua nigra, black hairy tongue, hyperkeratosis linguae). Sutton (*Diseases of the Skin*, 1931) considers the condition a rarity and states that only 50 authentic cases had been recorded since Rayer's original description in 1835. In discussion following a meeting of the Dermatological Section of the R.S.M. (*Brit. J. Derm. Syph.*, 1937, **49**, 243) this view was questioned by Parkes Weber, who suggested that black tongue was seen not rarely in the out-patient departments of ordinary hospitals. The "true" black tongue is characterized (Sutton, 1931, Andrews, 1938) by well-defined, circumscribed, thick, stable, soft, fur-like, brown to black patches with filaments 1/4 to 1/2 in. (6 to 12 mm.) long on any part of the surface of the tongue but especially that area immediately anterior to the circumvallate papillae. The "false" is characterized by its instability, evanescence, its covering of soft mushy detritus, and its shorter length of filament. Andrews (*Diseases of the Skin*, 1938) includes

among the "pseudo" variety a "mycotic" type, and a photograph in his book exactly mirrors the condition of the two cases described above. Heidingsfeld (quoted by Sutton and Andrews) considers the condition to be a congenital abnormality developing in later life and attributes the colour to changes in the horny cells of the hypertrophied filiform papillae as in the dermal hyperkeratoses. Oppenheim (quoted by Andrews) produced hypertrophy and hyperkeratosis of the filiform papillae by painting with vegetable tinctures and compares the effect to that produced on the skin by tar and aniline products. Prinz (quoted by Andrews) ascribes the pigmentation of the elongated papillae to a deposit of pigment from external sources (a reaction between the haemoglobin of the blood and sulphur and ammonium compounds derived from protein debris or tobacco). The appearance in mycotic black tongue is said to be due to the filamentous mycelia of fungi growing as moulds on the dorsum (Andrews, 1938). Thompson and Montgomery isolated an actinomycete from two cases. Wiedman grew *Microsporon minutissimum* from a case. This worker (quoted by Sutton) connects black tongue with trichomycosis—i.e., suggests a symbiosis between the fungus *Nocardia tenuis* and a black-pigment-producing bacterium, *Micrococcus ingrescens* (Castellani, quoted by Sutton). The *Journal*, in answer to a question on the subject (1943, **2**, 317) considered the black colour due to the fungus *Aspergillus niger*, but suggests that a yeast or a chromogenetic bacterium might be implicated. Among the exciting causes are listed tobacco, sulphonamides, atrophoneurosis, gastric hyperacidity, irritant mouth-washes, syphilis, antiseptics, astringents, and colouring matter introduced into the mouth.

The two cases described above were, I have very little doubt, of the "mycotic pseudo" variety, and, although they may have arisen fortuitously, the role played by penicillin is strongly suggestive of a cause-and-effect relationship. A likely aetiological view is that the fungal spores (and chromogenetic bacteria) are not uncommonly present in the air and mouth, but their growth is inhibited by the products of the normal buccal symbiotic flora. When penicillin alters this biological balance (cf. sulphaguanidine and streptomycin in the bowel) conditions then become less inimical to the growth of the organisms of "black tongue," which clinical condition may then arise. Such a theory would explain the "mycotic" cases unconnected with penicillin, the normal biological balance being disturbed by certain local irritants and antiseptics.—I am, etc.,

Leeds. P. D. BEDFORD.

Notification of Venereal Disease

SIR,—Mr. C. M. Ockwell (June 15, p. 929), in urging the adoption of some system of notification of venereal disease, says: "The two chief types who are mainly concerned in the spread of venereal disease are: (1) defaulters; (2) the irresponsible professional and amateur." Is there not a third type? i.e., the persons by whom the "irresponsible" ones have been infected. Many people appear to believe that women and girls who lead promiscuous lives somehow *originate* V.D.! I do not suppose Mr. Ockwell to be one of these, but he does not seem fully to appreciate the fact that while men are of course infected by diseased women each of these women has been infected by a diseased man.

Every scheme for notification so far put forward has ignored some factor which must limit its possibility of success when put into practice. Mr. Ockwell, for instance, proposes penalties for anyone who "knowing that he is suffering from an infectious disease exposes other persons to the risk of infection." Even with universal notification—of private patients as well as of those attending clinics—there would still be enough people who could not be proved to have *known* that they had V.D. in an infectious form to make a considerable leakage.

Regarding defaulters from treatment, it must always be an open question whether the number of persons deterred from defaulting by the weapon in the background would equal the number deterred by it from ever coming to the clinic at all. It is obviously very misguided not to *want* to come and be treated, but Mr. Ockwell says such people "are mostly subnormal or abnormal mentally or psychologically," so what can we expect? Not that I agree with his statement. Practical experience in social work shows how many reasons there are why regular attendance at a clinic for a long period is extremely difficult, involving, as it often does, much absence from work or from pressing home and family duties, and calling for exceptional qualities of perseverance and moral courage. Moreover there are two deeply ingrained common instincts. First, the instinct to resist being driven by threats; secondly, unwillingness to undertake anything without seeing just what it may involve. To the question, "If I start this treatment have I *got* to follow it up?" the answer, "You'll be silly if you don't, but no one can *make* you," is very often successful where "You'll be punished if you don't" would certainly fail.

The free confidential system of treating venereal disease was meeting with considerable success before the war. There seems no reason why with more education, more and better staffed and equipped clinics, and more social workers of the right kind with no whips up their sleeves, its future success should not be still greater. It must be gradual, and it is difficult not to be impatient, but apparent short cuts by way of penal legislation are likely to prove a much longer way round.—I am, etc.,

KATHARINE B. HARDWICK,
General Secretary,
London, S.W.1. Association for Moral and Social Hygiene.

P.S.—Dr. S. M. Laird, in his letter (June 29), recommends that official action under Regulation 33b should be allowed to be taken on one notification. This step seems likely to increase both the number of persons deterred from seeking treatment, and the difficulties of the social workers who are now tracing once-named contacts for the clinics. These workers often attribute their success to the very fact that they come as friends with no authority to enforce their advice.

Medical Future of the Colonies

SIR,—The correspondence in your columns may benefit us in the Colonies little since the B.B.C. has announced the appearance of a White Paper which promises basic pay for Colonial civil servants irrespective of race *and domicile*. If this means equal pay for equally qualified African and European medical officers, as demanded by Dr. Thomas (April 27, p. 663) and others, then either (*a*) recruitment of Europeans will cease since none will come to the Colonies, or (*b*) Africans will be grossly overpaid. If the market value of a young medical man in Britain is £*x* per annum, then he must be granted £*x* plus some kind of "danger" or "expatriation" allowance to compensate him for all that living in, say, West Africa entails—separation from home and family, isolation from professional contacts, a definite risk to health. The West African, enjoying some kind of immunity to the local diseases and living, perhaps, in his own home town, is to be given the same "danger" money and enjoy an income greater than his market value of £*y* per annum. No European will come to West Africa for the same salary as he can command at home. I can hardly imagine even a Colonial Financial Secretary approving a salary for an African greater than that he could obtain in Britain. For many years we in the Colonies have demanded basic salaries for all holders of similar posts, but we must insist on the provision of expatriation allowance for non-native officials.

Dr. Thomas states that the schooling of our children left behind in Britain need cost us nothing. Having enjoyed an excellent free education and disliking the public school system, I thoroughly agree, but the children must be fed, clothed, and housed. I know of no British education authority which provides these items free for men of professional standing. Moreover, the upkeep of European children in a temperate climate is rather more costly than the upkeep of African children attending the numerous excellent schools run by Government or State-aided missions in the larger coastal towns here; inclusive fees for board and tuition may be £25 to £50 p.a.; only light drill outer garments are necessary. Regarding higher university education, our African colleague is in a most favourable situation. In order to produce local graduates scholarships of up to £350 p.a., which may be increased to over £400, are offered to any African child who can pass a university entrance examination. Although we Europeans pay the same local taxes, our children do not enjoy these lucrative scholarships.—I am, etc.,

"WEST AFRICA."

SIR,—I would like to add my support to the observations made by "Another West Coaster" (June 15, p. 931). For many years I was able to observe newcomers to the service,

some of whom on arrival were imbued with a warm and yearning desire to do good by the African. But with the passage of time initiative and enthusiasm were dissipated and finally lost in a maze of monotonous routine duties which should devolve on clerks.

In recruitment for the Colonial Medical Service a totally misleading emphasis is laid on the opportunities afforded for clinical and research work. Opportunities there certainly are, material is rich, and the urge to grapple with them not lacking, but the dead hand of officialdom weighs heavily and ever more heavily. Innumerable returns, daily cash collection for the sale of drugs, the checking by auditors and Boards of Survey, relegate clinical work to the background. Interest in the microscope is discarded for a fanatical obsession with "store issue vouchers." Dexterity with a scalpel is replaced by deftness at the typewriter. The outlook of the medical officer becomes completely reorientated until he finally regards efficiency not as the ability to make contact with the people and by raising the clinical standards in his hospital to gain their increasing trust, but as ensuring that his returns are correct, his figures for the annual report impressive, his proposals for the future not too demanding. The impulse to act imperatively in any direction towards betterment must be curbed. Chaos would result. Soon his remaining characteristic is a dexterity for *not* getting things done.

What a waste to the service of imponderable but valuable assets! Surely it is now time to realize that the best will join its ranks only when imagination and driving force are directed towards sustaining a livelier interest in the chief human problem of the country—the sick African—and this not through the medium of clerical routine but by arduous clinical work and profitable research.—I am, etc.,

"STILL ANOTHER WEST COASTER."

Irish Representation on G.M.C.

SIR,—At the present time the power of the General Medical Council is being severely criticized. It has been said that it is very much out of date. I think that its constitution is rather obsolete in regard to the representation of the practitioners of Ireland. As reported in the *Journal* of June 22 (p. 968), one member has been elected to represent the practitioners of Ireland. As the majority of people in England know, Ireland has been divided for almost 25 years into two separate states, the Irish Free State—or Eire, as it is now called—and Northern Ireland. During this time the health services of Northern Ireland have progressed to a much greater extent than those of the Free State. In the latter the only State-aided services are to be found in the "dispensary system"; there is no "panel" service. On the other hand, in Northern Ireland the "panel" service has been instituted for about 15 years (the dispensary system is still present but only serves a very small proportion of the people).

The Minister of Health for Northern Ireland, the Rt. Hon. William Grant, M.P., has stated that it is his policy to introduce a similar health service to that of Great Britain, but not necessarily by the same means. So far as I am aware no such health service is in the policy of Mr. De Valera or his Government. The point I wish to raise is that it is useless for a practitioner from Eire to try and represent the practitioners of Northern Ireland. How can he know anything about conditions of practice in Northern Ireland when he is far from the nearest "panel doctors"? Surely the practitioners of Northern Ireland are to have a direct representative in the General Medical Council. It is most unfortunate that their representative is a man from a State where the way of practice and the way of living are as different as night is from day.—I am, etc.,

Gateshead. J. S. ELWOOD.

Socialism and the Pay-bed

SIR,—I cannot support too strongly the letter of Mr. J. B. Macalpine (June 22, p. 968). Having worked seven years in a municipal hospital and seen what he describes many times over I feel sure he is right in his protest. If the Hippocratic Oath means anything it binds us to do our utmost to relieve suffering. No political allegiance should be allowed to modify this obligation. In my opinion there is no agony more difficult to bear than that of the refined, sensitive, and intelligent forced into contact with the foul and the obscene.

What is one to do with a patient who blasphemes and curses, is insolent to the staff and quarrelsome with the other patients? In hospitals under political control this issue is often burked. A patient may make a complaint to a local politician if he is rebuked as he deserves. I have seen nurses and sisters in tears and decent patients boiling with rage because someone is behaving in a detestable manner. Medical superintendents are often afraid to do anything about it. My own remedy on occasion was to put the offender in a side-ward on a milk diet, no smoking, and a rigorous regime, ostensibly for his physical good. Sometimes it worked. But there is no sense and no humanity in compelling people who dislike this sort of thing to make contact with it.—I am, etc.,

Colchester. G. C. PETHER.

SIR,—Mr. Jas. B. Macalpine's letter (June 22), answering the letter from the medical officers of the Middlesex County Council, expresses admirably what many of us are thinking. What a pity that socialists will try to drag everyone down to a common level. The aim should be privacy in hospital for all those who wish for it, a dragging up to a higher level. Living in a highly socialistic industrial area one has had the opportunity of observing the reactions of leading local socialists to a sick body. Privacy and privileges are wanted, and they are even anxious to pay for them.

Is there not a great deal of humbug in this? Would these medical officers prefer to suffer their next severe illnesses in private or in the company of their social inferiors? Would they put their wives in a general ward or would they get the best they could for them? Unless they are willing to put their socialistic theories into practice on themselves and their families, which is contrary to my experience, they are not justified in their advocacy.—I am, etc.,

Rotherham. ERIC COLDREY.

SIR,—The whole-time medical officers employed by the Middlesex County Council passed a resolution that "The pay-bed system in hospitals should terminate altogether; patients should receive extra privacy, etc., solely on medical grounds" (*Journal*, June 1, p. 847). This seemed to be so glaringly wrong as to be unworthy of comment, but now that Mr. J. B. Macalpine has written condemning it, I feel compelled to point out that the objections to this resolution are far wider than he states in his letter.

These doctors postulate a new and most frightening ideology. Most of us consider that some control should be placed on extremes of wealth and poverty. Perhaps there are a few who honestly believe that all should have exactly the same regardless of ability or work. But the suggestion of controlling what a man may spend his savings on is new to me. Yet that is what this resolution does. It says in effect: "You shall not be ill in privacy, even if you wish, and we will see that you cannot by not providing the facilities." What right has anyone to say this? If a man wants his wife to have the comfort of privacy during illness, at the cost of giving up smoking for a year, what right has anyone to deny him the chance of spending his money as he wishes?

What would these doctors say if a restriction were placed on the provision of home comforts, so as to bring all homes to a bare level? Is it conceivable that furnishing firms should pass a resolution saying "Hard beds are the best and black curtains the most efficient, therefore we will provide no other." It would be an unsolicited and impertinent effort to manage the public, and so, in my opinion, is the statement of the whole-time medical officers of the Middlesex County Council.—I am, etc.,

London, N.W.1. R. HALE-WHITE.

Health Service Bill

SIR,—I too am one of the many doctors who view with misgiving the Government's proposals for a National Health Service. I have not seen as yet the pamphlets published by the B.M.A., for distribution by the doctors to their patients. I cannot, however, allow the letter of Dr. A. Angus (June 29, p. 999) to go unchallenged.

In company with many other M.O.s in the Naples area I received orders on the treatment of patients suffering from gonorrhoea which laid down exactly how much sulphonamide was to be given at what intervals and for how long. It also *ordered* the use of a mixture at specified intervals containing a specified amount of pot.-cit. The terms of this document were specific. They read: . . . " the patient will be given 1 gramme, etc., every four hours for 48 hours " . . ." will be given a mixture containing grs xxx pot.-cit." The whole course of treatment was laid out without hope and room for deviation from beginning to end. I mention this example because the dose of sulphonamide ordered was hopelessly inadequate. Nevertheless, it was some weeks before this highly dangerous order was rescinded.

Dr. Angus must also know that all preventive inoculation treatment in the Army is standardized. An M.O. can only get the material provided by the Army for this purpose and must use it in the way laid down. It may be that for the purposes of the Army it is a highly desirable thing to have doctors whose prime object is to make all ranks fit for duty (though sometimes this was attempted merely by certifying them fit for duty, when the disability was what is now described as psychological). Such doctors are very necessary also in a fascist or communist State. But it is against this very conception of the prime function of a doctor that so many of us are fighting. In common with many other doctors I regard the prime object of a doctor as being " to heal his patient." Furthermore I regard his relationship with his patient in doing so as a highly personal one, and one in which the State and its desires for certification and standard lines of treatment should play little or no part. The patient has in my view good cause to be apprehensive.—I am, etc.,

London, W.9. A. LEWIS.

SIR,—The statements made by Dr. J. V. DOCKRAY (June 29, p. 999) are inaccurate and, however well-intentioned, may do our cause much harm, and I should like to correct them. On the appointed day all doctors then in practice will have the right to have their names included ; those, however, who decline are at liberty to do so, and therefore the question of a strike does not arise. This could only happen if those doctors who had actually joined the scheme became dissatisfied and refused to work it. I personally have found no indication that the majority of people are in favour of the Bill.—I am, etc.,

Warrington. THOMAS REES.

Assistants and the Bill

SIR,—The common sense, honesty, and clear thinking evident in Dr. Shackleton Bailey's two letters (June 1, p. 847, and June 29, p. 999) came as refreshing breezes in the somewhat murky atmosphere created in my mind by spokesmen of the B.M.A. and many of your correspondents. We dogsbodies of general practice, the assistants, read with mixed feelings this kind of thing *ad nauseam*:

1. B.M.A. Council's " Principles of the Profession " (March 30, p. 468): " IV. Doctors should, like other workers, be free to choose the form, *place*, and type of work they prefer without Governmental *or other direction*." (My italics.)

2. My old chief, Sir Alfred Webb-Johnson, at Hendon last May 5 (May 11, p. 730): " Ever since Magna Carta it had been the right of the citizen to follow his employment how, *when*, and *where* he wished." (My italics.)

3. Dr. Charles Hill at the same meeting: " *We want to avoid the situation that a man or woman*, after years of arduous study, and after being recognized as a fit and proper person to practise medicine, *finds himself or herself debarred from the area of choice*. Mr. Bevan has described the procedure as ' negative control,' which does not seem very different to some of us from direction; *by closing certain areas to doctors they will be forced into other areas*." (My italics.)

We assistants seriously doubt the honesty of purpose of these high-sounding words when we have clauses in our agreements which read like this one (it is operative at the moment in my case although I have chosen to live here mainly because my children are happy and healthy here, and because we love the countryside and its people):

" The assistant agrees with the principals that he will not during this contract of service save in the employ of the principals nor within the space of five years thereafter practise or cause or assist any other person to practise in any department of medicine, surgery, or midwifery, nor accept nor fill any professional appointment whether wholetime or otherwise, whether paid by fee, salary or otherwise, or whether honorary, within a radius of 10 miles from —— aforesaid.

And if the assistant shall so practise or cause or assist any other person to practise within the radius aforesaid or in any way violate this provision he shall forthwith pay to the principals, or as they shall direct, or to their successors in title, the sum of one hundred pounds for every month or part of a month during which he shall violate or continue to violate this provision as ascertained and liquidated damages and not by way of penalty and without prejudice to the right of the principals or their successors in title to obtain an injunction to restrain such violation."

It is the wish of the vast majority of the community here that I should continue to be their family doctor, and a good deal of feeling has resulted from the way I have been treated by the principals. But that is another story. To Dr. R. McIntosh's classification of assistants (June 15, p. 928), however, I would add a fourth group—namely, those of us who, relying on another business contract, the Protection of Practices Scheme, found ourselves badly let down and forced to the level of the assistant in order to earn a salary, and so avoid charity to keep our families out of the P.A.I. It has been but one more experience which has convinced me that our profession is by no means as honest and honourable and dignified as the B.M.A. spokesmen would have the world believe. Their hypocritical statements in word, letter, and leaflet are rapidly ensuring the disgust and disdain of many thinking people inside and outside the profession. How much more honest and dignified it would have been to have co-operated wholeheartedly in this Government's task of creating a comprehensive health service which will, without any doubt, not only benefit the patients but the medical profession also. It will, I devoutly hope, raise our status from the business level to which it has sunk during the past 30 years.—I am, etc.,

C. G. JONES.

Ministerial Statements

SIR,—The irresponsible statements of medical policy on the part of responsible Ministers verge on the fantastic. A recent " beauty " to the effect that the best hospitals are located in the wealthiest areas twanged in me a long chord of memory. For as kids my brothers and I were often taken to hospitals, or left outside them, to await the departure homeward of distinguished relatives. And I well remember a small brother, aged 5 or less, in the two-hundred-questions-a-minute phase inquiring: " Mummy, why do they put nasty little houses round all the hospitals ? " A long-suffering parent patiently explained that the nasty little houses constituted the original accumulation, the hospital having developed secondarily as an institution designed to benefit the sick and suffering inhabitants of the " nasty little houses "; hence the juxtaposition, and, conversely, the paucity of hospitals in pleasant places.

A much shorter chord vibrates in resonance with another recent statement, expressing a Ministerial preference for survival in the cold efficient atmosphere of a large hospital to dissolution in the warm sympathetic environment of a small one (there being, I take it, no small municipal institutions in the country). I well know a hospital of sufficient proportions to commend itself to the Minister, in which every medical or surgical patient of 70 or over expires most peacefully of broncho-pneumonia within 48 hours of admission. I have conferred with other practitioners whose experience is the same, and we can only attribute the consistency of the result to the preternaturally fine ventilation of the place, the windows being opened wide on the patients all night long in conformity with an official order. " Cold efficiency " *is* the phrase, the refrigeration proceeding with mathematical precision from first night of warding to mortuary slab. Old folk kept in the warm stuffy atmosphere of their fuggy and ill-ventilated houses (and given the most incompetent and cursory treatment) do not always die, at any rate in the case of normally self-limiting diseases.

Are these Ministerial statements made deliberately falsely, or with reckless indifference to their accuracy or otherwise ? It is the differential diagnosis between knavery and folly, and a unique problem in that the greater the degree of the condition the harder it becomes to classify it as the one or the other.

The practical point is that truth and justice go hand in hand, and (whether truth be averted by design or by accident) a Government that will not speak truth is not going to do justice.—I am, etc.,

Stratford-on-Avon. PETER PARRY.

In the Words of Eliza Doolittle

SIR,—After the unfriendly comment of Dr. M. Curwen on Dr. Andrew S. Barr's letter I think it only fair to say some words in support of Dr. Barr. Dr. Curwen must not forget that there are different types of practices in this country. It is an acknowledged fact that practices in industrial and poor rural areas are much harder-worked and poorer-paid than in residential areas with comparatively wealthy populations. If I invited Dr. Curwen to come to County Durham he would be surprised at the low fees and the hard work attached to a club and panel practice, and I believe the same applies to Glasgow. Doctors in this district are really forced to look after far more patients than a single man should do without assistants, even in peacetime, as the overhead expenses—e.g., free medicine and treatment for club members—do not allow the cost of an assistant or partner. In any case, even if the letter of Dr. Barr was slightly exaggerated, I think it was the finest piece of humour I have read for a long time in the *Journal*, and my colleagues in this area share my opinion.—I am, etc.,

Spennymoor. E. BRAUER.

SIR,—When I wrote my letter some weeks ago, on the day after publication of the Spens report in the *Journal*, I had little expectation of it seeing the light of print, and still less of it raising a furore or a controversy. It seemed to me I could put in less ponderous form, for any plain man or woman to read, the conditions of service under which thousands of general practitioners labour. My letter was neither constructive nor destructive, neither *pro* anything nor *con* anything, just a plain unexaggerated account of what life means to thousands of G.P.s, and a side of the question which is not too well known or appreciated by the general public when our terms of remuneration are discussed—and they are going to be very much discussed in the near future. That I was not unsuccessful in striking a chord in the hearts of many of my colleagues (and their wives) is evident by my mail, which began to arrive within twenty-four hours of the appearance of the letter, and which was to me a striking testimonial to the eagerness with which our *Journal* is read, if to nothing else. My one mistake was in quoting the figure of £1,500—it was too near the desideratum suggested in the Spens report and could be taken as some reflection on it, or some suggestion that it was too low. Nothing could have been further from my intentions. If I had said £10,000 it would have suited my case quite well, and would have avoided any ambiguity, the whole case being that many of us are subject to hours and conditions of labour that no other trade or occupation would tolerate, and it is good that the public should know this when our professional remuneration is discussed.

I am afraid, Sir, that Dr. M. Curwen (June 22, p. 968) is a little off the mark in his observations. Conditions vary in different parts of the country, and it is most undesirable, if not odious, to compare one's remuneration with that of one's colleagues. As he has made some rather unkind inferences, however, I claim the right to inform him that if £1,500 is the target I have never come within sight of it, and I am certain, as the Spens report testifies, that thousands of my colleagues are in like position. His insinuations and innuendoes are therefore invalid, but one would have hoped that a professional colleague would have made sure of his facts before committing his inferences to print. In any case I doubt very much if the principal's paradise envisaged in his letter could ever come to pass, at least in this part of the world, where we try to honour our obligations as laid down in Terms of Service, para. 11 (8).

The answer to his last question as to what would happen if I refused to answer requests at my meal hours is simple. The door-bell would continue to ring (requests have to be made before they can be refused) and the summons would be answered, I hope, with native courtesy by wife or maid, while the local butcher, baker, and candlestick-maker enjoy their meals with their families in the peace and quietness to which they are absolutely entitled.—I am, etc.,

Glasgow. ANDREW S. BARR.

Obituary

GEORGE JESSEL, M.A., M.D., D.P.H.

The sudden and entirely unexpected death of George Jessel has thinned once more the ranks of the old guard of tuberculosis officers who took office in 1913. Ambitious, able, clear-headed, he was a stout fighter for all the best methods in the prevention and treatment of tuberculosis; and he had good scope in Lancashire and on many councils and committees to use his abilities, which were much above average level. Exacting and sometimes difficult to his subordinates, he never spared himself either in his own work or where assistants required defence. He combined first-rate clinical work with that degree of administrative ability which together makes the outstanding tuberculosis officer.

He graduated in 1906 from University College, Oxford, took his M.A. in 1909, and qualified from the London Hospital the same year. Resident for a year at the London, where he had won the Anderson Prize in clinical medicine, and also for a year at the Great Ormond Street Children's Hospital, he then spent two years in private practice. The D.P.H. at Manchester in 1913 under Delepine, when he was first man of the year, and the M.D.Oxon in 1917 completed a varied and successful medical training.

It was in 1913 that Jessel started work in tuberculosis, when he was appointed tuberculosis officer for a Lancashire County area and also for the County Borough of Wigan. This, like other similar appointments, was an interesting experiment which failed because the tuberculosis officer was under two masters. He also was acting M.O.H. of Wigan from 1914 to 1917. In 1919 he became consultant tuberculosis officer of the Lancashire County Council. Thus for 33 years he was in charge of Dispensary Area 4 containing a population of some 370,000, and including the Peel Hall Pulmonary Hospital, of which he was the visiting medical superintendent. There he did excellent work, especially with artificial pneumothorax. He introduced a system of graduated work and hobby occupations for the patients to vary the monotony and benefit the patients physically and mentally. In his own words: "The tuberculosis officer who aims at realizing the ideals of his office must undertake somewhat the role of schoolmaster and cleric as well as medical specialist." And no mean part of his reward lay in the volume of appreciation of the patients. The integration of hospital with clinic and domiciliary work carried out by a team, which has been the foundation of the Lancashire scheme, had its birth in Dr. Jessel's area, and his successful advocation and carrying out of this sometimes difficult union played a prominent part in its adoption for the whole administrative county.

For many years Dr. Jessel was connected with the N.W. Branch of the Society of Medical Officers of Health and the N.W. Tuberculosis Society, and was a past president of both these bodies. He took a great interest in the Joint Tuberculosis Council, for long was its treasurer, and at the time of his death vice-chairman. His wide knowledge of tuberculosis and clear vision of its public health and social implications were always at the service and to the benefit of the many committees of the council on which he served. His main hobby was photography, hence his enthusiasm for *x*-ray work, which he carried out at a high level and which made him a valued member of the Minister of Health's committee which prepared the way for mass miniature radiography.

To his widow, son, and two daughters we extend our sympathy in their bereavement.

G. L. C.

JAMES TAYLOR, M.D., F.R.C.P.

Dr. F. M. R. WALSHE, F.R.S., writes:

An old house physician of Dr. James Taylor, a warm admirer of him as man and as physician, and the recipient from him of many kindnesses and much encouragement, I may not forbear to add my modest tribute to the one paid by Dr. Gordon Holmes to his memory. It is an act of historical justice to recall that Taylor's was the first adequate account given in this country of the malady

we now know as subacute combined degeneration of the spinal cord. In his paper (*Medico-Chirurg. Trans.* 1895, 78), based upon the complete clinical and pathological study of two cases, Taylor recognized the two clinical variants of the malady, the spastic and the flaccid, and correlated them with the relative incidence of the lesion in the posterior and lateral columns of the cord. Of this lesion he gave an excellent account and some admirable photomicrographs. There can be no doubt that our modern clinico-pathological notion of the malady dates from the appearance of this paper. Perhaps, however, those of my generation may feel that his major contribution to British neurology was the handing on of the tradition and the legend bequeathed by the great figures of the golden age of neurology in this country. If we who have inherited these succeed in passing them intact to those who must follow us, we shall not have toiled or taught altogether in vain.

By the death of EDGAR HENRY WILKINS the school medical service has lost one of its most active minds. His father was headmaster of the Dublin High School, his uncle, Prof. George Wilkins, was a leading personality in Trinity College, and his mother was one of the early entrants at Newnham College, Cambridge, so his student days were spent among notable men. He graduated M.B., Ch.B. at Dublin University in 1912, and took the London Conjoint D.P.H. in 1924. Apart from his enthusiasm for school medicine, Wilkins was a keen athlete and a successful racing cyclist. He also climbed the mountains in Wicklow and in Wales, and was an authority on the bird life in the countryside around Dublin. Many leisure hours he spent in the intensive study of chamber music; but as a keen gardener and carpenter he found his greatest pleasure in his home life or in the company of his devoted wife and family. After qualifying, Dr. Wilkins spent ten years in New Zealand, where he worked with Sir Truby King and became director of the Dominion school medical services. On his return to England he was appointed to the school medical staff at Birmingham, and in that capacity he served for the rest of his life. He was interested in all phases of public health, but his chief enthusiasm was school medicine. He put his heart into this work and viewed it from a wide angle. He had all the keenness of the pioneer without the fanaticism. To his school work he brought not only sound clinical knowledge but also deep personal interest in the patient. His influence was widely appreciated, and his loss is deeply felt by the parents of the children in a crowded industrial area to whom he devoted his energies and talents, as also by the teachers of schools under his care. In the recent link-up between the Birmingham School Health Service and the Institute of Child Health, the choice naturally fell upon Wilkins to represent the school health activities in relation to the institute.

We regret to announce the death of Dr. HOWARD HENRY at Debenham, Suffolk, on June 24, aged 70. Son of James Henry, of Dublin, he had his medical education in that city at Trinity College, graduating B.A. in 1897, M.B., B.Ch., B.A.O. in 1900, and M.D. in 1906. Before leaving Dublin he served as medical and surgical resident at Adelaide Hospital and Steevens' Hospital, and took the L.M. at the Rotunda Hospital. It was about that time that he contributed a note to these columns on calculation of the date of delivery in pregnancy. Dr. Henry served with distinction in the war of 1914–18 as a major in the R.A.M.C.(T.), winning the Military Cross and the Territorial Decoration. On returning to civil life he was for a time medical superintendent of Leopardstown Park Hospital (for neurasthenic cases) under the Ministry of Pensions. He joined the B.M.A. in 1904, was elected chairman of the South Suffolk Division in 1928, and represented it at two Annual Meetings. He was for some years medical officer and public vaccinator for the Debenham district.

Many people will have learned with sorrow of the death on June 26 of Lieut.-Col. ALFRED WHITMORE, M.D.Cantab., who had a distinguished career in the I.M.S. Apart from his service with the Army in the 1914–18 war, most of his service was in the Civil Department in Burma. He was for some years pathologist to the Rangoon General Hospital, and afterwards one of the Rangoon civil surgeons. He had a great deal to do with the early development of the Burma Medical School, and he was an original and stimulating teacher, for whom students, nurses, patients, and all his colleagues had a warm affection. After his retirement from the I.M.S. he worked in the pathological department at Cambridge, and although he underwent an extremely serious operation three years ago and had grave disabilities, he stuck to his work with great fortitude until a few days before his death. Whitmore was a most lovable man with a very keen sense of humour, and all who knew him well were greatly attached to him. He seemed to radiate something buoyant and joyous, and the outlook always seemed brighter when he was about. Those who had the privilege of his friendship will miss him sorely. He leaves a widow and two sons, both of whom are medical men. R.K.

The following further tribute to Squadron Leader R. W. S. MARSHALL comes from Dr. J. Kinloch McCollum: "I knew Robert Marshall in his late school years and as an undergraduate at medical school. I met him again during the war years, first in Assam and later throughout Burma from time to time. I had looked forward to meeting Robert again on the Burma-China border, where he was expected to take up an important duty, and news of his loss came as a profound shock to me. We all refused to believe that he had been killed, and kept on hoping that he would eventually be recovered by comrades on patrol or by friendly natives; this was not to be. Robert had the grand gift of making genuine friends, of being able to give more than he ever expected to receive, of sincerity and lovable charm. He had a modest disposition, and his frank and open personality created for him true and lasting friendships. I met Robert for the last time less than two months before he embarked on the detail of duty which was to mean his death. He talked to me of his home, of how he was looking forward to his approaching repatriation, of his experiences and how he meant to benefit by them in his future relations with mankind. His outlook was filled with high ideals of service, and his motto was 'deeds not words.' He had a deep affection for those with whom he served, especially his men and N.C.O.s. This was a reciprocal affection, and based on mutual regard of men for each other who daily faced the reality of living and the uncertainty of life. Robert was always happy when giving not only professional advice to his sick, but also when he was able to help and succour those in need, and these were many in the dark days of 1943 and 1944 in Burma. He carried a flame of hope to all in pain, and was a source of comfort to those in trouble. Robert, I know, willingly gave his life, not only for King and Country, but also for principles which he believed in and which he had the conviction to effect; greater courage hath no man than this."

The Services

Major-Gen. O. W. McSheehy, C.B., D.S.O., O.B.E., has been appointed Col. Cmmdt. of the R.A.M.C., in succession to Major-Gen. H. P. W. Barrow, C.B., C.M.G., D.S.O., O.B.E., who has attained the age limit.

Col. (Temp. Brig.) A. E. Richmond, C.B.E., late R.A.M.C., has been appointed Honorary Surgeon to the King in succession to Major-Gen. G. Wilson, C.B., C.B.E., M.C., late R.A.M.C.

Col. R. W. Galloway, C.B., C.B.E., D.S.O., late R.A.M.C., to be D.D.M.S., and has been granted the acting rank of Major-Gen.

Col. F. M. Collins, I.M.S., has been appointed Consulting Surgeon, India Command.

Temp. Surg. Lieut.-Cmdr. R. G. S. Whitfield, R.N.V.R., has been awarded the D.S.C., and Surg. Lieut. A. W. Dawson-Grove, R.N.V.R., has been mentioned in dispatches, for distinguished services during the defence of Hong Kong and while prisoners of war in enemy hands.

DEATHS IN THE SERVICES

Flight Lieut. IAN ARCHIBALD MCLEAN THOMSON, who was killed in a flying accident on June 25, was born in October, 1916, studied medicine at Glasgow and qualified L.R.C.P.&S., L.R.F.P.S. in 1942. After holding house appointments at the Glasgow Royal Infirmary, he was granted a commission as flying officer in the Medical Branch, Royal Air Force Volunteer Reserve, in January, 1944, becoming Flight Lieut. a year later.

On June 20, Surgeon General Thomas Parran, chairman of the U.S. Delegation to the International Health Conference, was nominated chairman of the Conference. After serving in 14 States on public health research and administrative duties, and from 1930 to 1936 as Commissioner of Health for the State of New York, Dr. Parran was appointed Surgeon General of the U.S. Public Health Service. He was reappointed in 1940 and 1944 and on numerous occasions was representative to international conferences. In February, 1941, he came as a member of the U.S. Commission to England to study health conditions, epidemic control, transportation, and evacuation of children in Great Britain.

Medical Notes in Parliament

HEALTH SERVICE BILL

On July 2 the Committee resumed discussion of Clause 69. Mr. BEVAN explained that the question at issue was the matters contained in the Bill which should, respectively, be subject to affirmative resolution by the House, to negative resolution, or to Orders.

DISTRIBUTION OF HOSPITALS FUND

Mr. WILLINK raised the status of the Minister's actions under Clause 7, subsection (5c), under which the Minister could make regulations for apportioning among the regions the capital value of the hospitals fund. The Minister was going to put into one pot the gifts which countless people had made to hospitals throughout the generation. In some areas substantial sums would be added, and from other areas substantial sums would be subtracted. The Minister was being entrusted with a function which the Bill should bind him to explain to the House. As the Bill stood, what the Minister did in that respect would only be subject to a negative resolution.

Mr. BEVAN said the qualitative issue, whether this fund should be used in this way or not, had already been determined. The House of Commons did not want to bother with the quantitative distribution of the fund because that aroused the utmost prejudice in different parts of the country.

Mr. WILLINK pointed out that, since the issue of the White Paper, Parliament had not been told whether the Minister was moving in the direction of a large number of regions—say 16 to 20. It had been told that the regions were not to be geographical areas, but had not been told whether the L.C.C. would be the local authority for an area which was also the area of a regional hospital board, or whether there was to be something like the sectors of the Emergency Hospital Service. Those interested in Wales did not know whether Wales would be a region. All that the Conservative Opposition desired was apportionment among the regions, not among the hospitals.

Mr. BEVAN said it should be remembered that the Ministry would deal with the competing claims of different hospitals, and that one hospital would be given money out of the fund at the expense of another. The "global" figure would remain the same. No Minister worth his salt was going to distribute that fund except with the intention of having the healthiest kind of service in the areas, and in the most equitable fashion. This was the sort of thing which the House of Commons could properly leave to administration, just as it had set aside the sum of £66,000,000 for compensation for the loss of the sale of goodwill. The apportionment of that money to the doctors concerned was also a matter of complexity, and possibly acrimony, and the House of Commons would prefer it to be left to the civil servants.

The amendment proposed by Mr. Willink was defeated by 22 to 10. The Committee than accepted an amendment moved by Mr. BEVAN to make subject to a negative resolution of Parliament any order of the Minister varying the constitution of the central health services council. The Clause as amended was ordered to stand part of the Bill. Clauses 70 and 71 were accepted in their original form.

On Clause 72 Mr. BEVAN moved an amendment which he said was necessary because in certain circumstances under the Asylums Officers Superannuation Act, 1909, a visiting committee paying a superannuation allowance to a retired employee was entitled to call upon other visiting committees who had previously employed him to make a contribution towards the allowance. The purpose of the amendment was to see that no injustice was done to individuals in these cases. The Clause with this amendment was ordered to stand part of the Bill.

Mr. KEY moved an amendment on the passage dealing with the definition of hospitals in Clause 73. He proposed to leave out the words "providing treatment" and to insert "the reception and treatment of persons." He said it was desired to make plain that the hospital was a residential building for the reception of people for convalescent and rehabilitation treatment. This amendment was accepted, as was a further amendment moved by Mr. Key specifying dental as well as medical treatment in the definition of illness requiring treatment. The Committee also accepted Mr. Key's definition of "superannuation benefits" as meaning "annual superannuation allowances, gratuities, and periodical payments payable on retirement, death, or incapacity, and similar benefits."

DEFINITION OF A SPECIALIST

During discussion on the motion that Clause 74 stand part of the Bill Mr. WILLINK pointed out that the Clause did not provide any definition of "consultant" or "specialist." Mr. MESSER said the National Institute for the Blind were anxious to know whether blindness was an illness. He further inquired whether deafness was to be an illness. He thought it would be better if the Bill said that "illness" included mental illness and any injury or disability, without requiring medical treatment or nursing. In London at the Tavistock Clinic there were medical men, but a stage arrived when the cases were referred to a lay psychiatrist when what was wanted was not so much medical treatment as social welfare treatment.

Mr. BEVAN said the less Members attempted to penetrate into this topic the less difficulty they would get into. He agreed with much that Mr. Messer had said. He would take the advice of the medical profession on the definition of "specialist." At the moment he did not know what it was, and the profession had not a definition which was precise enough to put into the Bill. Furthermore, there would be general medical practitioners who, although they were classified as such, had shown that they could be relied upon to give a particular form of treatment as well as a specialist who had academic qualifications in the subject. The Ministry wanted to leave the question to the advisory bodies operating through the Minister and the regional boards to define those particular general practitioners *ad hoc* as specialists for the purposes of the administration. That was the more necessary because there was an inadequate supply of specialists with objective specialist qualifications. Mr. Bevan promised that in this matter he would move with the greatest possible caution.

The Clause as amended was ordered to stand part of the Bill, and Clause 74, the last Clause of the Bill, was approved without discussion.

PROVISION OF SPECIAL SCHOOLS

Mr. KEY then moved a new Clause. This provided that a regional hospital board or board of governors of a teaching hospital might, with the approval of the Minister, arrange with any local education authority or voluntary organization for the use of any premises forming part of a hospital administered by the regional hospital board or, as the case might be, forming part of the teaching hospital, as a special school, and for the maintenance of children other than patients attending such a school. Mr. Key said that normally children receiving this instruction would be patients in the institution, but there were cases where subnormal children were brought from their homes to classes in some of these institutions.

The Clause was added to the Bill, as were other new Clauses dealing with exemptions from stamp duties on certain documents required for the purposes of the Act, and with the supply of goods by local health authorities.

INDUSTRIAL MEDICINE

A new Clause moved by Mr. PIRATIN enjoined the Minister to prepare within five years a scheme for the study and control of conditions of work, prevention of occupational disease and injury, placement, and periodic medical examination of workers, health education of workers, record-keeping and research. Dr. MORGAN remarked during the discussion that up to the present research into industrial medicine in the United Kingdom was slight. There was not even a decent industrial diseases museum. Mr. BEVAN said a preventive health service would cover the whole of the ground with which Mr. Piratin dealt. Nutrition and housing would go most of the way towards providing that service but had nothing to do with this Bill. In the course of time the health service under this Bill would assimilate by its administrative momentum a considerable amount of industrial health services. Many of the provisional facilities which were now given in some workshops would be provided by the general health service. He hoped that before the end of this Parliament the Government could envisage the future industrial health service more clearly than at present, though he could not promise legislation. The proposed new Clause was withdrawn.

Mr. SOMERVILLE HASTINGS moved a new Clause on the application of the Bill to London, but it was negatived.

NOXIOUS NOSTRUMS

Mr. LINSTEAD moved but withdrew a new Clause to provide that the Minister should appoint a committee, including persons expert in medicine and pharmacy and persons having practical experience of the proprietary medicine industry, to prepare for submission to the Minister a list of medicines the prescribing of which by medical practitioners for the purposes of the Act was not recommended, or with respect to which the public were cautioned as to their use because they were without physiological effect, or the price at which they were sold was excessive, or they were advertised by claims that were false or exaggerated.

Mr. BEVAN said he sympathized with the intention behind this Clause. These noxious nostrums were so seductively advertised that hard-headed people were taken in. The subject, however, was too wide to bring in at the end of a Committee stage and doctors themselves would say that the Clause as drafted was an interference with their right to prescribe. Herbalists and other people would insist on being heard before legislation of this kind was introduced. The time had arrived when the public of this country should be protected against the ramp that was going on, but the subject must be dealt with in entirely separate legislation. He regarded the matter as of some urgency.

Col. STODDART-SCOTT said the new Clause did not suggest that Parliament should deprive the community of such useful drugs as Eno's, Californian syrup of figs, or senna pods, but only the bogus things, such as one saw advertised every day.

Mr. WILLINK moved but withdrew a new Clause proposing that the Minister could make grants to national bodies engaged in securing improvement in the physical or mental health of the people, and instanced the Provisional Council of Mental Health and the Tuberculosis Council. Mr. BEVAN said these words were unnecessary as he already had wider powers under the Health Act, 1919, and under Clause 1 of the Bill.

THE CENTRAL COUNCIL

Several amendments were down to the First Schedule, and the Chairman, Mr. Bowles, allowed a general discussion. Capt. BAIRD said that under the Bill there were six *ex officio* members of the Central Council, including the Presidents of the three Royal Colleges, the Chairman of the British Medical Association, and so on. The dental practitioners claimed to be represented by the Chairman of the Dental Board. The medical profession had 20 representatives and the dentists only three.

Mr. WILLINK said he had tabled amendments. The Committee did not want a medical hegemony in the National Health Service. The most admirable physicians and surgeons were often most unpractical in thinking out administrative methods. The five persons with experience of hospital management and the five persons with experience of local government who were to be placed on the central council should not be doctors but should be the lay elements on the council. Mr. BEVAN said he agreed with this. He hoped there would be no auctioning of seats on this council. He thought the doctors were in a special position because they had an over-all responsibility for the health services and covered services like radiology and pharmacy. The Committee would work more through subcommittees than as a whole. The Ministry wished to bring into the central council the fresh air of lay approach. It was necessary to have strong lay representation to get an effective service.

Mr. HASTINGS said he inclined to look on the council as an overdoctored area. The Committee accepted amendments to provide that the ten members of the council mentioned by Mr. Willink should not be medical practitioners. Other amendments were withdrawn.

Mr. BEVAN then moved an amendment to provide for the payment of expenses to members of committees or subcommittees set up by the central council. This was carried by 23 to 11, and the Schedule as amended was agreed to.

On the motion that the Second Schedule stand part of the Bill, Sir H. LUCAS-TOOTH said under the Schedule compensation was payable for hospital buildings and land, and also for equipment, furniture, and so on. The total compensation paid in respect of a hospital would be merely for the break-up value of the undertaking. Mr. BEVAN pointed out that arbitration was provided. The Committee agreed to the Schedule.

REGIONAL HOSPITAL BOARDS

On the Third Schedule Mr. WILLINK said that as the Schedule stood there was no guarantee against representation of a particular branch of those interested. It would be possible to get the regional hospital boards too medical or too lay. He suggested that the representation should be made up of university, professional, local health authority, and other persons, and, in the first instance, of those representative of the old voluntary hospitals. Provision should be made for the appointment of persons having experience both of public service and of financial and commercial affairs. Due regard should be had to the representation on a board of members of boards of governors of teaching hospitals.

Mr. BEVAN said it would be better to keep this matter within the administrative powers of the Ministry. Regional boards would vary considerably in size. It had been suggested there should be one regional board for Wales, but Wales had only one university medical school, in Cardiff, and there might be administrative convenience in having one regional hospital board for Wales with both Cardiff and Liverpool universities represented on it. Hospital administration and economy were not necessarily jobs which doctors could do best. Individually they were most charming and educated persons, but because of their immersion in their profession their collective sagacity was not the sum of their individual intelligence. He asked the Committee to retain the language already in the Bill. He added that the Ministry must call upon the rich experience in the field of voluntary hospital administration.

Mr. WILLINK withdrew his amendment, and Mr. KEY secured approval for amendments to provide for consultation between the management committee appointed for a particular voluntary hospital and the committee which had previously been responsible for running the hospital. By 19 to 8 the Committee rejected an amendment proposed by Mr. WILLINK empowering a hospital management committee to co-opt not more than three persons.

CONSTITUTION OF BOARDS OF GOVERNORS

On July 3, resuming the discussion of the Third Schedule, Col. STODDART-SCOTT moved an amendment dealing with the constitution of boards of governors of teaching hospitals. It suggested that the boards should consist of such number of members to be appointed by the Minister as he thought fit, but that one-sixth should be nominated from the universities, one-sixth by the regional hospital boards, one-sixth by the medical, dental and other members of the teaching staff of the hospital, one-sixth after consultations with the local health authorities, and that other persons should be appointed from the governing bodies of the hospitals. Boards of governors should have power to co-opt not more than three persons, and should have the opportunity of electing their own chairman with the concurrence and agreement of the Minister.

Mr. BEVAN said if the balance of the Bill was altered grievances would be established. Mr. WILLINK said the proposed constitution would be better for a body of a quasi-university character. In such institutions as Guy's Hospital and St. Thomas's there was a special claim for continuity with their past. He hoped the Minister would agree that after something like two-thirds of a hospital board had been appointed by him after nomination, the remaining one-third should be chosen from the existing board of governors so as to give continuity. Why did the Minister wish to choose the chairman for a body of this kind? The normal thing was that all bodies chose their own chairman though the Committee had conceded that the Minister should nominate the chairman of regional boards and management committees.

Mr. SOMERVILLE HASTINGS thought the one-fifth representation proposed in the Bill for universities was too little. He would oppose its reduction from one-fifth to one-sixth.

Mr. BEVAN said university people would argue that universities ought to be more represented, but the Government did not wish to over-emphasize the academic aspect. Teaching hospitals were part of the general hospital service and were expected to give general hospital facilities. That was why it was necessary that the teaching hospital in its administration of the general hospital service should be as much an agent of the Minister as the regional board. In the appointments of these new boards of governors the Ministry would have regard to the existing boards. The more the distinct position of the boards of governors was increased the more the Committee would appear to reduce the status of the regional boards. The Ministry must resist the importunities of the teaching hospitals. At the moment the universities had scarcely any representation, and this Bill for the first time regularized the relationship between academic medicine and hospital administration. That was what the Goodenough Committee recommended. Mr. BEVAN added that he thought it reasonable in this as in all other cases that the chairman should be a person agreeable to the rest of the board of governors but a person appointed by the Minister.

The amendment moved by Col. Stoddart-Scott was negatived and drafting amendments were made on the motion of Mr. KEY.

Mr. WILLINK moved to provide that where a teaching hospital comprised more than one hospital a committee should be appointed by the board of governors of the teaching hospital for each such hospital. Mr. BEVAN said this should be left to be decided in the circumstances concerned. Mr. Willink withdrew his amendment. Mr. REID moved but withdrew an amendment to provide that representatives of the Press should be admitted to the meetings of every regional board. The Third Schedule as amended was then agreed to.

LOCAL HEALTH AUTHORITIES

On the Fourth Schedule Mr. KEY moved a series of amendments which were accepted. He explained that one of them was designed to enable the local authority to give to its health committee functions which it had under other Acts in addition to those which it had in connexion with child welfare, midwifery, lunacy, and mental deficiency.

Mr. WILLINK moved an amendment to ensure that every health committee of a local health authority should include one or more medical practitioners providing general medical services in the area or specialists serving on the staff of a hospital within the area.

Mr. BEVAN said he had considered this point when the Bill was being framed, and had rejected what was now proposed on the ground that the scheme which he had devised provided a great degree of professional self-government and professional participation in the health services as a whole. Very often these professional people were elected as councillors, and it would be resented if an elected body were compelled to elect some persons who had not taken the trouble to stand for election. If a medical practitioner were not too busy to serve on this important body for three years he could take the trouble to stand for election. The amendment was negatived and the Fourth Schedule as amended was agreed to.

EXECUTIVE COUNCILS AND LOCAL MEDICAL COMMITTEES

On the Fifth Schedule Dr. CLITHEROW asked the Minister to consider allowing a representative from the optical practitioners committee on the executive council. He remarked that the provision of two members appointed by the pharmaceutical committee appeared to be rather small as there were 14,000 contracts with the Ministry of Health to carry out pharmaceutical services.

Mr. BEVAN said the ophthalmic services would be a feature of the regional boards and not of the executive councils. The executive council was the body supervising the general medical practitioner service in the area. It had been constituted with scrupulous care, and any attempt to upset the balance would have repercussions almost as great as the atomic bomb.

The amendment was negatived and the Committee agreed on the motion of Mr. KEY to insert "Local Medical Committee" instead of "Medical Practitioner Committee" in the provision that seven members of each executive council should be appointed by this body whose title had previously been changed.

MEDICAL PRACTICES COMMITTEE

In the Sixth Schedule the Committee negatived a proposal by Mr. WILLINK to provide that the chairman and members of each such committee should be appointed by the Minister "from among medical practitioners nominated for the purpose by such organization or committee." The Schedule was then agreed to. Amendments were made on the motion of Mr. KEY in the Seventh Schedule. The deputy chairman of the tribunal would be appointed by the Lord Chancellor and not by the Minister, and one member would be a layman. The Committee agreed to the Schedule with these amendments, and also to the Eighth Schedule.

More than 50 amendments were made in the Ninth Schedule. Mr. BEVAN said the extension of the existing lunacy machinery was a very complicated affair. The Committee was not altering the lunacy code but was extracting mental institutions and care from a whole series of enactments and services. It had been discovered during the Committee stage that some enactments or parts of enactments had been overlooked. This series of amendments was necessary to put the matter right.

All the amendments proposed by Mr. Bevan were accepted, the Schedule as amended was agreed to, and numerous administrative amendments were made in the Tenth Schedule, which, with these changes, was also accepted.

This was the last Schedule and the Committee agreed that the Bill as amended should be reported to the House.

Control of Penicillin

On June 27 Mr. E. P. SMITH moved that the Control of Penicillin (No. 1) Order, 1946, dated May 21, be annulled. He said the Order was too limiting and restrictive in one respect and slightly too wide in another. He recalled that Sir John Mellor had asked on June 20 why this Order required prescription of penicillin by a registered medical practitioner whereas prescription by a duly qualified medical practitioner satisfied the Pharmacy and Poisons Act, 1933. The Government reply had been that by the Medical Act, 1858, the two expressions were synonymous, and that current drafting practice favoured the former. Mr. Smith objected that the Order which he challenged made no mention of the unregistered medical practitioner and his patient. Doctors who had been struck off the *Register* by the G.M.C. for reasons unconnected with their medical skill would be debarred from the use of this invaluable drug. The offences for which a doctor might be struck off varied, but the one charge which the G.M.C. could not bring against the doctor was that his theory of medicine was wrong. That was specifically mentioned in the Act of 1858. Doctors who had been struck off the *Register* were free to practise but they could not sign a death certificate and could not prescribe dangerous drugs. He went on to refer to the case of Dr. Hennessy.

The Speaker ruled that on the Order under discussion the House could not debate the actions of the G.M.C.

Mr. C. S. TAYLOR suggested that because penicillin was not a dangerous drug it should be permitted to people who were not qualified medical practitioners. The Speaker replied that this might be so, but it would not be in order to go into the details of unregistered people who might supply this drug. Mr. TAYLOR seconded the motion for rejection of the Order. He said there was no excuse whatever for limiting penicillin when anybody could go into a chemist's shop, buy a bottle of aspirins, and kill himself. There was a consensus of opinion in the medical profession that penicillin would not do any harm. It would not necessarily cure, but it would not kill.

Mr. DAVID ECCLES said penicillin was a drug which was useful for animals, and experiments were going on which would be very useful indeed in the livestock industry. He asked how it was possible for a veterinary surgeon to get the drug under this Order.

Replying for the Government, Mr. LEONARD said the production of penicillin had been widely developed, and in the United Kingdom £3,000,000 had been spent in plant and factories; of that total £2,000,000 was Government money. Penicillin was one of the most potent cures for certain diseases but was not a universal cure. Its indiscriminate use might be attended by grave consequences. There was a danger of spreading strains of bacteria which were resistant to penicillin if it was improperly used. There were two methods in the production of penicillin. The earlier was that of surface culture. That method would be substantially departed from by the end of June, leaving the new deep culture responsible for by far the greater bulk of the production, which would come mainly from a factory at Speke and another at Barnard Castle. The average monthly production of penicillin in 1943 was 300 mega units. In 1944 it was 3,200 mega units. In 1945 it had grown to 6,000 mega units a month. Penicillin made available by June production this year would be about 300,000 mega units. From this total some 56,000 mega units would be allocated to the Services. Export licences had been granted for 130,000 mega units, leaving about 120,000 for home consumption. Production was expected to increase substantially over the next few months. Britain was not now importing penicillin. Greater production had made distribution possible through commercial channels from June 1, and such statutory control as remained had been arranged largely at the request of the trade. The supply situation would not allow of uncontrolled distribution which might result in the experience of America, where penicillin was diverted to trivial uses. It was impossible to forecast the civilian demand for penicillin. Until commercial distribution had been in force for some months the Ministry of Supply must ensure that it was available in full quantity for the genuine medical user rather than for general needs. On the advice of the bodies concerned it had been decided to make it freely available to hospitals, doctors, and dentists, and for it to be sold to the general public by chemists only on production of a certificate from a qualified practitioner. It was also decided to restrict the manufacture of items with penicillin content to such things as the Minister of Supply, with the approval of the Minister of Health, should advise.

With regard to the veterinary use the position was still as stated on May 20 by Mr. Tom Williams. There were sufficient supplies for approved veterinary research, but until the demand for human needs was known it would be impossible to indicate what supplies would be available for the treatment of dairy cows generally. Penicillin was of particular efficacy in the treatment of mastitis, and adequate supplies had been made available to the Ministry of Agriculture for experiment, and large-scale field trials were being carried out. Penicillin was not a poison or a dangerous drug, but might produce harmful results if used without medical guidance. The main reason for limitation was to prevent it being frittered away on trifling uses. The reference in the Order to Government departments was put in to enable penicillin to be used for veterinary purposes. The question of medical practitioners was one for the Minister of Health.

Sir IAN FRASER said he was not convinced that drugs which were controlled should be made available to unregistered medical practitioners, but he objected to the control of drugs unless they were poisons.

Col. STODDART-SCOTT asked whether Mr. Leonard in his remarks referred to liquid and crystal penicillin or to preparations made from penicillin, like toothpaste, creams, and ointments. The public ought not to have to go to a doctor to get a prescription for penicillin toothpaste as soon as it became available. It should be used by everybody, and the creams and ointments should be in every household as a protection against simple ailments. He hoped the Government departments

would be able to issue penicillin for human research as for agricultural research, because some of the qualified medical men who carried on research in the great medical schools preferred to have none of the inhibitions of the G.M.C. associated with them, and therefore they had not their names on the *Medical Register*.

Mr. Smith's motion to annul the Order was defeated by 145 to 45.

Propaganda against Immunization.—Sir E. GRAHAM-LITTLE inquired on June 18 whether Mr. Bevan had considered the printed circular which the National Anti-Vaccination League sends to parents of newly born children, declaring that immunization against diphtheria is dangerous and ineffective; and what action he proposed to take to prevent this interference with his Department's immunization campaign. Mr. BEVAN said he was aware of these circulars. He was confident that parents would look at the facts rather than at propaganda of this sort. He made it his business to make the true facts well known.

Universities and Colleges

UNIVERSITY OF OXFORD

At a Congregation on June 15 the degree of D.M. was conferred on R. D. Newton, and that of B.M. on T. J. Thompson.

On July 1 the degree of D.Sc., *honoris causa*, was conferred on Prof. James Bertram Collip, F.R.S., director of the Research Institute of Endocrinology at McGill University, Montreal, and chairman of the Associate Committee of Medical Research of the National Research Council of Canada.

UNIVERSITY OF CAMBRIDGE

The following candidates have been approved at the examination indicated:

FINAL M.B.—*Part II (Principles and Practice of Physic, Pathology, and Pharmacology):* D. M. C. Ainscow, G. S. Andrew, A. V. G. Bibby, M. Q. Birkbeck, E. A. D. Boyd, D. K. Briggs, B. H. Brock, J. A. Bulleid, E. H. W. Burt, H. C. Churchill-Davidson, I. F. J. Churchill-Davidson, L. W. Clarke, J. W. Coleman, M. G. Cox, D. J. Crockett, P. S. Davis, J. R. B. Dixey, W. M. Edgar, H. S. Eyre, R. Finlayson, A. C. Franks, J. B. Frost, T. C. Gibson, L. Haas, A. W. I. Hall, P. S. Hall, J. G. Harrison, P. L. M. Hartley, W. J. Hay, P. M. R. Hemphill, S. L. Hetherington, P. F. C. Jackson, J. H. Jacobs, K. E. Jefferson, A. G. Jessiman, J. W. Ker, G. L. Leathart, J. D. Lever, R. H. G. Lyne-Pirkis, E. L. McDonald, C. McIver, R. W. J. Maclure, W. D. Mail, K. E. Marsh, H. G. Mather, T. R. Maurice, E. P. G. Michell, D. T. Milnes, D. R. Morgan, I. M. Ormerod, J. V. Owen, I. M. Ramsden, R. Randell, P. Rhodes, J. S. Rivers, O. C. A. Scott, J. G. Selwyn, M. Shirley, D. R. Smith, J. S. Swallow, C. E. D. Taylor, R. J. D. Temple, K. Till, M. K. Towers, H. W. Trusted, S. Vakil, W. van't Hoff, D. R. Wallace-Jones, D. B. Wallis, W. R. Wardill, I. W. Whimster, H. Whitmore, H. B. Whitmore, R. J. Williams. *Women:* R. S. J. Baker, Mrs. H. F. Barnes, J. E. G. Brieger, J. Chivers, F. M. Fountain, J. F. Grant, M. Hobson, P. A. Howard, E. G. Howe, G. M. Hunt, C. M. E. Jones, H. M. J. Lawn, B. M. Leach, G. A. Meigh, Mrs. M. H. Miller, Mrs. A. M. P. Pantin, A. M. Sibly.

R. Nigam, M.D., M.S.(Lucknow), has been appointed University Demonstrator in Anatomy, and J. A. R. Miles, M.B., B.Chir., and G. R. E. Naylor, M.B., B.Chir., have been appointed temporary University Demonstrators in Pathology, for three years from Oct. 1, 1946.

At a Congregation held on June 24 the following medical degrees were conferred:

M.D.—R. Daley, A. E. de la T. Mallett.
M.B., B.CHIR.—*C. H. Hoskyn, *G. S. Ostlere.

* By proxy.

UNIVERSITY OF MANCHESTER

The following candidates have been approved at the examinations indicated:

FINAL M.B., CH.B.—[14]Margaret E. Bailey, [123]B. N. Catchpole, [1]D. A. N. Hoyte, [125]D. Longson, [123]J. Marshall, [1]K. A. Rowley, Ruth A. Ainsworth, R. H. Broughton, W. B. Browne, D. A. Chadwick, C. P. Chivers, J. F. Cogan, J. K. Craig, Annie Cross, K. S. Daber, A. M. Davies, I. M. Gow, H. G. Herrmann, H. P. Hilditch, C. B. Hindley, D. P. Howarth, E. V. Hulse, E. Jaffe, P. D. Kelsall, [2]P. B. Lacy, Theresa P. Lee, E. Levy, F. S. Lomas, Winifred M. McIlwrick, D. A. MacLeod, N. S. Moores, J. A. Noblett, M. Panikkar, I. W. Payne, E. Priestley, D. W. Purser, Anne R. Quinn, R. G. Rooney, V. E. Sherburn, K. D. Stewart, Roberta A. Stewart, [2]J. B. L. Taylor, J. H. M. Thomas, Hilary M. Thompson, H. W. Wyile. *Part I (Forensic Medicine and Hygiene and Preventive Medicine):* Mary K. Astin, Margaret Bagshaw, M. S. Barnett, Mary L. Barrett, K. Benger, Kathleen Burn, D. L. Chadwick, Elizabeth H. Clow, A. Coady, P. J. Croxford, Dorothy R. Davies, L. Dawson, J. Dubberley, R. D. P. Eaton, M. B. Edwards, G. Fairclough, M. Feingold, J. R. C. Flett, P. D. Fowler, Ruth Goodier, B. Goodman, Joan Hampson (*née* Gannon), Thelma B. Hoyle, A. K. Karfoot, R. A. Kershaw, N. P. Lancaster, W. Lees, D. C. Lindars, Muriel Lister, G. P. Lowe, H. G. Lowe, V. T. Mason, J. G. Mathie, H. L. Matthews, I. O. Miller, C. L. Moss, G. N. L. Mulliner, A. Murphy, J. Naginton, J. A. Nightingale, L. M. Norburn, Mrs. Barbara Oldham, R. Ormerod, F. A. Rainford, J. Rimington, K. Robinson, A. E. Shelswell, Margaret E. R. Stoneman, D. B. Stott, Margaret E. Thorp, J. T. L. Unsworth, Joan M. Waterfall, G. W. Waters, R. J. A. Webb, H. W. Wilson, Letitia E. Woodvine, D. H. Wright.

[1] Second-class honours. [2] Distinction in Medicine. [3] Distinction in Surgery. [4] Distinction in Obstetrics. [5] Distinction in Forensic Medicine.

UNIVERSITY OF LIVERPOOL

The following candidates have been approved at the examinations indicated:

M.D.—H. Cantor, Eva V. Cooper, J. B. Hannah.
CH.M.—W. R. Hunter, R. A. C. Owen.
M.B., CH.B.—*Part III:* G. H. Daglish, Joan Evans, R. L. Goldson, Ailsa M. Heath, Vivien P. Helme, Maureen M. Hoey, D. T. L. Hughes, G. C. Hunter, H. S. Levy, F. W. Sheffield, Dorothy E. M. Thomas, Maureen M. Tickle, E. H. Wilson. *Passed in Separate Subjects:* G. B. Brown (Medicine and Surgery), P. Hampson and L. Robinson (Medicine and Obstetrics and Gynaecology), Nellie Hughes (Surgery and Obstetrics and Gynaecology). *Part II:* G. Frew, M. F. Holt, P. F. Jack, A. B. Jones, H. Keidan, G. H. Lucas, W. A. L. Thompson, W. P. Wilson. *Part I:* C. Alexander, C. E. Arkle, June P. Arnold, N. O. Ascroft, W. B. Ashby, D. J. B. Ashley, Barbara B. Ball, J. F. Bell, G. Bilsbarrow, Joyce L. Blakeley, L. B. Bruce, Anthea M. Bushby, [2]C. R. Cartwright, A. Dalzell, F. J. Dunn, E. C. Edwards, J. D. E. Edwards, J. A. Finnigan, G. Frew, H. L. Goffman, T. D. H. Gray, E. Gruber, Sylvia S. C. Hinde, C. I. Hood, A. W. Howel-Evans, Gwen E. Hughes, T. J. M. Hughes, J. Humphreys, Mair Humphreys, P. F. Jack, Dorothy M. Jennings, Elizabeth M. Johnson, C. Jones, C. H. Jones, W. W. Jones, Gwyneth H. Kendrick, P. Kilburn, Christine Lewis, [1]J. F. Lynch, A. G. Mackinnon, Mary K. Marchant, G. Marsh, E. Martindale, Margaret J. Miller, [12]Helen T. Morgan, E. G. Myerscough, J. O'Donoghue, Mary G. O'Hare, N. C. W. Owen, W. R. Parkes, W. H. Parry, Leslie M. Pinkerton, Gwyneth E. Pritchard, Freda M. Roberts, J. R. Roberts, R. V. Roberts, [2]Kathleen M. Roby, Barbara F. M. Shirley, H. M. Thomas, Joyce K. Watkin, [2]W. K. M. C. Watkins, D. B. Wilkinson, D. P. C. Williams, [12]H. T. G. Williams, W. P. Wilson. *Passed in Separate Subjects:* A. J. Bathurst and J. H. Murray (Pharmacology and General Therapeutics), J. N. Rimmer (Pathology and Bacteriology).
D.P.H.—*Part II (New Regulations):* G. P. Barclay, P. L. Bernard, T. B. D'Costa, E. C. Dymond, Thelma R. Gaunt, Eirwen M. Jones, A. E. Roberts, J. H. M. Tilley, Gwendoline Williams, W. R. Williams. *Old Regulations:* H. R. G. Davies.

[1] Distinction in Pathology and Bacteriology. [2] Distinction in Pharmacology and General Therapeutics.

UNIVERSITY OF EDINBURGH

At a graduation ceremony, held on June 28, the honorary degree of LL.D. was conferred on Dr. John W. Bone, treasurer of the General Medical Council and of the British Medical Association, and Mr. J. W. Struthers, consulting surgeon to the Edinburgh Royal Infirmary and past-president of the Royal College of Surgeons of Edinburgh; also on Prof. Frédéric Joliot and Madame Irène Joliot-Curie, and on Mrs. Lilian Lindsay, honorary librarian and president of the British Dental Association.

UNIVERSITY OF ST. ANDREWS

The following candidates have been approved at the examinations indicated:

M.D.—*H. A. Haxton, J. D. B. Macdougall, *G. H. Smith.
M.B., CH.B.—*J. W. Black, *R. M. Allan, *D. A. McGreal, *Marjorie S. Milln, *Mary I. Milne, *H. G. Morgan, *Valerie N. Nairn, *W. F. Ross, *I. M. Stewart, *W. F. Walker, Joan E. Alexander, Maryan G. Anderson, Marjory W. Berwick, Doreen M. Bottone, Katerina Bramley, Jean F. Brown, Laetitia M. Bruce, D. W. K. Buchanan, Athene M. A. Cochrane, Joan E. Cozens, J. M. Dunbar, Margaret Duncan, R. M. Duncan, G. Fyfe, Kathleen M. Graham, Anne E. Grant, W. G. Hood, Olive M. J. Johnston, M. A. Lambert, D. A. Lewtas, W. Lothian, C. E. MacDonald, H. MacKenzie, F. McKerracher, J. N. MacLennan, H. S. McWalter, A. C. Millar, Anne D. Miller, Elsie Morison, Sheila M. P. Morphy, Rhoda G. Nicoll, Alison Oberlin-Harris, Elizabeth J. Page, T. J. Parkinson, D. A. Petrie, Sheila M. Ross, S. A. Smith, Sheila M. Tocher, J. C. Walker, Charlotte J. S. White, S. Whitfield, Clare E. Wildeboer, Frances M. E. Wylde.

* With commendation.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

On July 4 three Fellows were elected into the Council to fill the vacancies caused by the death of Sir Girling Ball and the retirement in rotation of Mr. Victor Bonney and Mr. Ernest Finch. The following Fellows were elected for the period of eight years:

Ernest Frederick Finch (Royal Infirmary, Sheffield)	625
Robert Paul Scott Mason, M.C. (Birmingham United Hospital)	379
Julian Taylor, O.B.E. (University College Hospital)	364

The following were the other candidates:

Ronald Ogier Ward, O.B.E., D.S.O., M.C. (St. Peter's Hospital)	356
Arthur Lawrence Abel (Princess Beatrice Hospital)	341
Rodney Honor Maingot (Royal Free Hospital)	288
Grant Massie, C.B.E. (Guy's Hospital)	276
Arthur Espie Porritt, C.B.E. (St. Mary's Hospital)	276
John Basil Hume (St. Bartholomew's Hospital)	262
Sir Stanford Cade, K.B.E., C.B. (Westminster Hospital) ..	204
Harold Clifford Edwards, C.B.E. (King's College Hospital) ..	196
William Hugh Cowie Romanis (St. Thomas's Hospital) ..	187
Norman Claudius Lake (Charing Cross Hospital)	166
William John Ferguson (West Middlesex Hospital)	94

In all 1,484 voted; in addition 12 votes were found to be invalid.

At the request of the Ministry of Health and Local Government of Northern Ireland, the Central Council for Health Education has established an area office in Belfast so that the work it undertakes on behalf of Government Departments and local authorities will now include Northern Ireland as well as England and Wales.

No. 25

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended June 22.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1946					945 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	51	3	26	2	—	46	3	25	1	2
Deaths		—	—				1	—		
Diphtheria	274	20	99	32	17	422	22	99	76	14
Deaths	2	—	1	1	—	4	—	1	1	—
Dysentery	93	8	36	—	—	287	49	97	6	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	2	—	—	—	—	—	—	—	—	—
Deaths		—					—			
Erysipelas			35	10	2			35	15	2
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				50					43	
Deaths	49	5	13	8	1	41	5	8	11	5
Measles*	4,516	977	540	27	10	6,626	342	405	39	10
Deaths	4	2	1	—	—	5	1	—	—	—
Ophthalmia neonatorum	57	9	26	—	—	78	1	21	—	—
Deaths										
Paratyphoid fever	1	—	—	—	—	4	—	3 (B)	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal	496	25	3	2	1	376	22	3	5	2
Deaths (from influenza)†	7	—	1	—	—	7		—	—	—
Pneumonia, primary			173	16				184	21	
Deaths		26		7	6		22		15	9
Polio-encephalitis, acute	1	—				1	—			
Deaths		—					—			
Poliomyelitis, acute	13	—	1	3	—	6	—	—	—	2
Deaths		—					—			
Puerperal fever		1	13		—		3	21		—
Deaths										
Puerperal pyrexia‡	137	13	14	1	—	132	9	13	3	—
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	941	77	173	25	15	1,237	47	207	18	33
Deaths	—	—	—	—	—	1	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	4	—	1	2	—	7	—	5	3	1
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	2,026	142	89	36	34	1,117	70	96	33	8
Deaths	4	—	2	2	—	2	—	2	1	—
Deaths (0–1 year)	365	51	55	30	20	304	42	47	27	20
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	4,129	625	559	143	110	4,010	551	582	197	115
Annual death rate (per 1,000 persons living)			12·3	9·2				13·2	12·7	
Live births	9,672	1536	1054	410	266	7,031	834	887	402	288
Annual rate per 1,000 persons living			21·2	26·3				17·7	25·9	
Stillbirths	261	38	34			219	24	38		
Rate per 1,000 total births (including stillborn)			31					41		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* an increased incidence was recorded for most infectious diseases; the rises included whooping-cough 401, measles 101, and scarlet fever 75. The only large decline in notifications was dysentery 53.

The increase in whooping-cough was mainly confined to the north, the largest increases being Lancashire 85, Yorkshire West Riding 48, Staffordshire 47, and Derbyshire 38. The only large fall was in Essex, where 34 fewer cases were notified than in the preceding week.

The largest rises in measles were Cheshire 76, Warwickshire 53. Scarlet fever increased slightly in most areas, and notably in Staffordshire 26 and Middlesex 21.

Last week's record low level of diphtheria increased by 12; the only large local variation was a rise in Staffordshire 12.

Returns for dysentery were the lowest for two and a half years. Only one county, Lancashire 35, had more than 10 cases.

In *Scotland* the largest variations in the trends of infectious diseases were a decrease in measles 120, scarlet fever 14, and dysentery 12, with an increase of 32 in acute primary pneumonia. Although the total for diphtheria remained unchanged a rise of 15 occurred in Glasgow. The largest returns for dysentery were Edinburgh 14 and Glasgow 10.

In *Eire* the chief feature of the returns was an increase of 26 in diarrhoea and enteritis. The largest returns were Dublin C.B. 33 and Waterford C.B. 10.

In *Northern Ireland* a decrease was recorded for measles 13 and scarlet fever 5, while an increase was reported for whooping-cough 7.

Week Ending June 29

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,063, whooping-cough 2,073, diphtheria 313, measles 4,177, acute pneumonia 440, cerebrospinal fever 39, dysentery 123, paratyphoid 9, typhoid 6.

Medical News

The twenty-third annual meeting of the Mental Hospitals Association is being held to-day, Friday, July 12, at 11 a.m. in the Guildhall, London. The programme includes a paper by Dr. Thomas Beaton, physician-superintendent of St. James Hospital, Portsmouth, on the National Health Service in relation to mental health.

The final programme has now been issued for the 105th annual meeting of the Royal Medico-Psychological Association to be held in Edinburgh on July 17, 18, and 19 at the Royal College of Physicians, 9, Queen Street. After election of officers and transaction of business at the first morning session, with Lieut.-Col. A. A. W. Petrie in the chair, Prof. D. K. Henderson will be inducted to the office of president at 2 p.m. and give his presidential address. On July 18, at 10 a.m., papers will be read on education in relation to psychiatry, and at 2 p.m. on the legal aspects of psychiatry. On July 19, at 10 a.m., there will be papers on the social aspect of psychiatry.

A provincial meeting of the Tuberculosis Association will be held at Oxford on July 18–20 in the Sir William Dunn School of Pathology, South Parks Road. On Thursday, July 18, at 2 p.m., Dr. F. R. G. Heaf and Dr. Donald Stewart will open a discussion on "The Tuberculous in Industry," and Dr. William H. Feldman, of the Mayo Foundation, will read a paper on "streptomycin in experimental tuberculosis" at 5.15. On Friday morning Dr. Hans Jacob Ustvedt, of Oslo, and Dr. S. Roodhouse Gloyne will open a discussion on the relationship between primary and adult pulmonary tuberculosis. In the afternoon there will be papers and demonstrations on sarcoidosis. On Saturday morning Dr. André Bernou, of Chateaubriant, and Dr. Carl Semb, of Oslo, will open a discussion on the treatment of tension cavities.

The President and Council of the Royal Institute of Public Health and Hygiene have arranged a ceremony at 28, Portland Place, W., on Monday, July 22, for the presentation of the Harben medal to Sir Alexander Fleming, and the Smith Award to Dr. John J. Buchan. Guests will be received at 3 o'clock by the Right Hon. Walter Elliot.

The British Social Hygiene Council, Tavistock House North, Tavistock Square, W.C.1, will hold a summer school in social biology at Wadham College, Oxford, from Aug. 1 to 15. The fee is £13 13s. plus £1 1s. enrolment fee (not returnable). Applications and inquiries should be addressed to the Secretary of the Council in London.

At a meeting of the directors of the Society for Relief of Widows and Orphans of Medical Men, held on July 3, with Dr. A. Ware, senior, vice-president, in the chair, the death of a member was reported, also that of one of the widows, who had been in receipt of relief for 35 years and who was 83 when she died. She had received in grants from the society on behalf of herself and her two children the sum of £2,475. £1,937 10s. was voted for the payment of the half-yearly grants to the 53 widows entitled to them. Every Service member is requested to communicate with the secretary on demobilization and give his present address. This is very important, as until their arrears of subscriptions are paid they are not considered members of the society. Relief is granted only to widows and orphans of deceased members. Membership is open to any registered medical man who, at the time of his election, is residing within a twenty-mile radius of Charing Cross. Full particulars may be obtained from the secretary, 11, Chandos Street, Cavendish Square, W.1.

In June, 1945, a research unit was set up by the Medical Research Council and the Ministry of Fuel and Power to investigate the problem of Pneumoconiosis in South Wales. During the past year it has been expanding and starting various lines of work, including: (1) A study of disabled miners in order to discover the most suitable types of employment for them after leaving the pits; (2) An investigation into methods of treatment, for which purpose a ward has been set aside at Llandough Hospital by Cardiff City Council; (3) A long-term study of working miners and the air they breathe to make certain that methods of dust suppression are adequate to prevent the disease developing in the future; (4) An attempt to discover improved methods of detecting the disease in its earliest stage before the lung is permanently damaged. The research unit was opened officially on June 25, 1946, by H.R.H. the Duchess of Kent.

The Scottish National Blood Transfusion Association has appointed Dr. Douglas A. C. McRae as director of the Edinburgh and South-East of Scotland Blood Transfusion Service and of the Association's Central Depot (Eastern Area) at Edinburgh, in succession to Dr. C. P. Stewart, who has held these posts in an honorary capacity for several years. Dr. John Wallace has been appointed director of the Glasgow and West of Scotland Blood Transfusion Service, and of the Association's Central Depot (Western Area) at Glasgow, in succession to Prof. J. P. Todd, Ph.D., who has acted in an honorary capacity for several years. Dr. Stewart and Prof. Todd will continue their association with the work as honorary consultant directors.

Higher salaries for midwives have been agreed by the Rushcliffe Midwives Salaries Committee, and the new scales have been accepted by Mr. Aneurin Bevan, Minister of Health, who will recommend their adoption to all employing authorities. The increased salaries, which will have effect from Jan. 1 last, cover midwifery teachers, departmental midwifery sisters, midwifery sisters, and staff midwives working in hospitals and maternity homes, non-resident domiciliary midwives, and pupil-midwives. Higher payment is also recommended for midwives giving part-time service.

The appointment of Dr. Peter Reid, of Buckie, Banffshire, as chief medical officer to the U.N.R.R.A. Mission, Czechoslovakia, is announced. Dr. Reid has been in the R.A.M.C. since the outbreak of war in 1939, from which he has been released to take up this appointment. Previously Dr. Reid had spent many years in Peru as chief medical officer to the oilfields there, and in 1932 he went on to a similar position as chief medical officer at Basrah, Irak.

The National Association for the Prevention of Tuberculosis, which has already conducted medico-social surveys on tuberculosis in various parts of the British Commonwealth, is now undertaking, in co-operation with the Government of the Gold Coast, a survey of the problem in that Colony. A Research Fellow, who will be a specialist doctor and have a technical assistant, is to be appointed to conduct a twelve-months medico-social survey, and the N.A.P.T. will publish a report of his findings.

Announcement is made by Surgeon General Thomas Parran of the U.S. Public Health Service that a grant for the establishment of 125 Fellowships to train American physicians and sanitary engineers in public health has been approved by the National Foundation for Infantile Paralysis. Each Fellowship provides a year's graduate training in a school of public health or a school of sanitary engineering.

Six senior administrators of the Greek nursing services are visiting Britain under the auspices of the British Council and the Royal College of Nursing to learn of nursing and hospital developments and meet British colleagues. In London they will visit the Peckham Health Centre, the Florence Nightingale International Foundation hospitals, and nursing organizations.

The new *Register of Speech Therapists* has been published by the Board of Registration of Medical Auxiliaries, and medical practitioners can obtain a copy free on application to the Registrar of the Board, B.M.A. House, Tavistock Square, London, W.C.1.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology, Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

ANY QUESTIONS?

Airborne Cardiac Case

Q.—*A patient, aged 49, has an enlarged heart with aortic and mitral valvular disease due to old rheumatism. She gets about quite well and leads an active social life. Should she be allowed to travel by air to Switzerland—a journey of four hours at between 2,000 and 5,000 feet?*

A.—At high altitudes the pressure of oxygen in the inspired air is less than normal. The work of the heart in supplying the tissues with an adequate quantity of oxygen is correspondingly increased. It is generally held that altitudes up to 5,000 feet (1,500 m.) increase very little the burden on the heart. In the case under consideration, although heart disease is well developed, there is obviously a reasonable cardiac reserve as the patient leads an active social life. It may be predicted, therefore, that this individual will tolerate the journey of four hours at an altitude not exceeding 5,000 feet without distress at the time or undesirable after effects. It has to be borne in mind that other factors come into play, such as the temperament. A neurotic or highly strung disposition would facilitate the development of symptoms from minor causes, but would be hardly likely to represent a serious hazard in the present instance.

Quick Twins

Q.—*A young woman is due to have her second confinement in four months' time. She says she knows she is going to have twins because* (a) *her husband is a twin,* (b) *her own sister has had twins,* (c) *she feels no movements and has been told that this is a sign of twins. Is there anything in the belief that lack of quickening is a sign of twins?*

A.—I have never previously heard of this belief, although it may well appear in the older writings and some reader can perhaps supply a reference. The idea may have arisen as the result of the association of multiple pregnancy and hydramnios. In the latter condition the patient is sometimes unconscious of foetal movement. The more common view is the opposite—i.e., that excessive foetal movement is a sign of twins, and this undoubtedly is sometimes true. In this case the strong family history of twins is more significant than anything else. It should be added that a large proportion of women think that their second pregnancy is multiple. This is because they feel "larger" than they did in the first pregnancy, because the tone of the abdominal and uterine muscles has deteriorated, and they are more conscious of foetal movements.

Progressive Muscular Atrophy

Q.—*Has the cause of progressive muscular atrophy been discovered? What treatment is possible in a case intolerant to atropine? What is the prognosis?*

A.—The cause of true progressive muscular atrophy has not yet been discovered. In view of a somewhat similar picture arising at times in association with neurosyphilis, an examination of the cerebrospinal fluid and of the blood Wassermann should be done. There is no form of treatment known which has the slightest effect. Drugs of the atropine class are used only for

their effect in diminishing secretions where bulbar symptoms raise a risk of inhalation pneumonia; they are not necessary otherwise in uncomplicated cases of progressive muscular atrophy. The duration of life varies from a few months to a few years, the average being two years. Cases with bulbar involvement run a shorter course.

Chronic Pancreatitis

Q.—*What is the best treatment for chronic pancreatitis?*

A.—Chronic pancreatitis may cause symptoms either as a result of inflammatory and obstructive lesions or by defective production of enzymes governing protein and fat digestion and absorption and carbohydrate utilization, as well as other functions not yet elucidated. Treatment of the first type is surgical and should eliminate factors such as infection and stones from the gall-bladder and common duct; treat symptomatically the recurrent attacks of abdominal pain. In the second group, since cases have been recorded of patients with no symptoms save for loose stools, though necropsy has shown almost complete replacement of pancreatic tissue by fat, no therapy may be needed. However, between such patients and those who go downhill rapidly with severe upsets in protein, fat, and carbohydrate metabolism all varieties of defect may be encountered.

Successful substitution therapy with pancreatic extracts effects improvement in both fat and protein absorption (Rekers, Pack, and Rhoads[1]; Beazell, Schmidt, and Ivy[2]). Unfortunately, commercial preparations have varied in activity, so it is important to give adequate and effective doses—at least 5 g., and in some cases up to 20 g., daily in enteric-coated capsules by mouth—to ensure benefit. Much of the abdominal discomfort and diarrhoea can be controlled by a high-protein, low-fat diet. If steatorrhoea is present, advantage should be taken of the extra meat allowed under the present rationing scheme. A high-fat diet, although increasing the actual amount of fat absorbed, leads to an exacerbation of the abdominal symptoms. The diabetes sometimes associated with chronic pancreatitis should be controlled with insulin. Finally, upsets of liver function have been demonstrated and a lipotropic effect of certain pancreatic extracts claimed. The significance of these observations is not yet fully understood, and no therapy which can be recommended for routine use is, as yet, available.

Sulphur Dermatitis

Q.—*I recently treated a case of scabies with a proprietary ointment containing sulphur. What is the treatment of sulphur dermatitis?*

A.—Dermatitis from sulphur applications is very common, both from individual sensitivity to sulphur and as a result of direct irritation. The treatment is to avoid sulphur internally or externally and any strong applications to the skin. The course depends upon the extent of the trouble and the type and health of the patient. For mild cases advise baths followed by calamine lotion or liniment. For more severe cases Lassar's paste diluted with an equal quantity of soft paraffin. Rest, alkalis, and mild sedatives are of value.

Schick Test and Pseudo-reactions

Q.—*Our local health authorities are using the Schick test without a control. Is this the recognized practice nowadays?*

A.—The Schick test is commonly used for two main purposes: (1) to test the susceptibility of a child or a community to diphtheria, and (2) to test the efficacy of artificial immunization—sometimes called the Schick-conversion rate. If in a community where the test is being used as an index of susceptibility there are older children, some of whom will probably give pseudo-reactions, the control material should always be used, for the severe local or systemic upsets which sometimes follow the injection of the prophylactic reagent occur most often among these pseudo-reactors. It is wiser not to give them any injection. If on the other hand the Schick test is being used to check the efficiency of a particular method of immunization in a group of young children, the control test need not be used since we are not concerned with the occurrence of pseudo-reactions.

[1] *J. Amer. med. Ass.*, 1943, **122**, 1243.
[2] Ibid., 1941, **116**, 2735.

Phytic Acid and Osteo-arthritis

Q.—*If phytic acid stops the absorption of calcium (May 18, p. 784), would not foods containing it be of service in hypertrophic osteo-arthritis?*

A.—No. The primary lesion in osteo-arthritis is erosion and fragmentation of articular cartilage. The hypertrophic bony changes are an attempt to replace a damaged joint surface. There is no increase in the serum calcium in osteo-arthritis and to cause decalcification by any method in this condition might lead to osteoporotic changes in the affected joints, such as are found in rheumatoid arthritis. Decalcification might also cause the serious general effects of a low serum calcium level.

Blood Pressure and Emotion

Q.—*Do nervous and neurotic states influence the blood pressure?*

A.—From everyday experience it is known that the blood pressure responds easily to emotional stimulation. Fahrenkamp demonstrated that in hypertensive patients the level of blood pressure is subject to considerable fluctuations according to their emotional state. Knauer observed in soldiers with healthy blood vessels increases in blood pressure, up to 180 mm. Hg, immediately after a fierce bombardment; this increase subsided only after a few days' rest in hospital. As a result of their systematic investigations, Dunbar, Alexander, and Saul came to the conclusion that the common characteristic of hypertensive patients is their inability to deal with their aggressive impulses. They are friendly and easy to get on with in their social contacts, but repression of hostility which is near to the surface leads to anxiety, which, in turn, finds expression in hyperpiesis. Dunbar draws attention to the increased tension, and sometimes spasm, of voluntary or involuntary muscles, or both, commonly encountered in hypertensive patients, which may be alleviated as unconscious conflicts become conscious. She feels that this tension is part of the whole defence mechanism psychologically and physiologically—a general attitude of being on guard. Psychological treatment of selected patients suffering from hypertension was strikingly successful.

INCOME TAX

Employee "Living In"

B. S. employs a secretary-dispenser and in addition to paying him a salary provides him with board and lodging—computed "to be worth £3 a week." Can B. S. deduct £3 a week as a professional expense?

∴ Yes—with the proviso that the amount should represent the cost to B. S., not necessarily the amount which the board and lodging is "worth" to the employee.

Temporary Residence in the United Kingdom

"MATA" expects to come to the United Kingdom in the autumn for a course of special study. Will the date of his arrival affect his income tax liability?

∴ Yes. Although he is coming for a temporary purpose only he will be liable as if resident here for any financial year in which he spends six months in this country. If he arrives after Oct. 5, 1946, he will not be liable for 1945–6. If he arrives before Oct. 5 he will be so liable unless he absents himself from the United Kingdom for a period long enough to reduce his stay here before April 6, 1947, to a period less than six months.

Recoveries from Debts Written Off

"D." is partner in the firm of E. and D. The practice was formerly owned by B. and E., and outstanding debts were valued yearly and the income tax allowance accordingly received in respect of bad and doubtful debts. E. and D. bought the debts at a valuation (presumably that amount was the closing figure in B. and E.'s accounts) and have since recovered more than the aggregate paid for the debts. Is the excess liable to be brought into the accounts of E. and D. for income tax purposes?

∴ It is assumed that E. and D. wish to be treated as continuing the practice, and not as commencing a new one. The validity of the general ruling of the Revenue authorities (i.e., that the amounts recovered in excess of the net amount that have been credited for income tax purposes shall be brought in as income) was recently supported by a decision of the Court of Appeal, and any objection "D" might raise on appeal against the decision of the inspector

of taxes would accordingly fail. If, on the other hand, the firm of E. and D. should elect to be charged to income tax, as if they had commenced a new practice, the basis of the decision would not seem to apply, and it might be possible to exclude receipts in question. But, of course, other factors would have to be taken into account before it was decided to make such an election.

Car Transactions

F. E. bought a car "V" in 1939 for £200 and has been allowed £170 depreciation on it. It was sold on March 26, 1946, for £280, showing a capital profit of £260−(£200−£170=) £30—i.e., £250. Car "S" was bought for £505 on March 12, 1946, and taken over on March 25, 1946.

*** No "balancing charge" is due on car "V" as it was sold before April 6, 1946. Claims should be made in respect of car "S" for 1947–8 as follows:

Initial allowance	£505 @ 20%	£101
Wear and tear	£505 @ 25%	£125
		£227

The capital value to carry forward for the 1948–9 allowance will be £505−£227=£278.

"EQUITY" bought a car "A" in 1939 for £200 and has received wear and tear allowances on it amounting to £132. (A further £17 will be allowed on it for 1947–8, reducing the value to £51.) He sold it on April 8, 1946 for £560, and on the same day bought car "B" for £703. How is his liability affected?

*** The transactions do not affect the tax for the years 1946–7 and 1947–8. For 1948–9, however, "EQUITY" will be liable on a balancing charge of £560−£51=£509, and can claim in respect of car "B" the initial allowance (20% of £703=£141) and the wear and tear allowance (25% of £703=£176).

A. R., who is in general practice, bought a new car on March 5, 1946, for £614, selling his old car for £250.

*** For the purposes of the initial allowance the car will be deemed to have been purchased on April 6, 1946—this is in accordance with the Income Tax Act, 1945. Consequently the initial allowance will be due for 1947–8 not for 1946–7. If the accounts of the practice are made up to a date not earlier than March 5, depreciation allowance—i.e., 25% of £614—can be claimed for 1946–7, but if the accounts are made up to, say, Dec. 31, the depreciation allowance for 1946–7 will not be affected, though it will be, of course, for 1947–8.

P. J. will practise as a locum tenent from Aug. 1 to Sept. 30 and will buy a car for £500 in August. On Oct. 1 he will become a partner in an existing practice.

*** Assuming that it is necessary for P. J. to have a car to perform his duties as a locum tenent he will be entitled to set against his earnings in that capacity the initial allowance on the car—i.e., 20% of £500=£100 and wear and tear at 25% of £500=£125 for two months—i.e., £21. The practice is presumably assessed on the basis of the previous year, and P. J. will be liable for tax on his share of that assessment. That tax will accordingly not be affected by the purchase of the car in the current year.

Cash Basis or Earnings Basis

"DEMOBBED" returned in May, 1945, to a practice which was carried on for him in his absence. Income tax was assessed for that period on the basis of the cash received. Can he make his return for 1945–6 on the basis of the cash received in 1944–5, and his return for 1946–7 on the basis of the cash received in 1945–6?

*** We advise him to do so. This is not a case of a practice having ceased and been restarted: it was carried on as a continuing practice, though for a time necessarily in a different manner. "DEMOBBED" and the Revenue authorities both applied the cash basis on those lines, and no doubt hitherto to the detriment of the former. Law and equity both justify the continuance of the cash basis for the years subsequent to demobilization.

Schedule E Car Expenses

W. S. receives a car allowance of £150 per annum as a whole-time M.O.H. Can he claim as an expense the excess of his expenditure (plus depreciation, etc., allowances) over the £150 received?

*** He is so entitled in law provided that he can prove the expenses to be "necessary" in the performance of his duties. But he will no doubt find it difficult to show to the satisfaction of the appeal commissioners that the Local Authority does not pay an allowance large enough, taking one year with another, to meet the "necessary" expense.

LETTERS, NOTES, ETC.

Treatment of Sterility in Women

Mr. TERENCE ROBINSON (South Shields) writes: Many cases of infertility are relieved by curing a cervical erosion, which has been produced often by the use of vaginal tampons during menstruation. This highly unphysiological practice is increasing along with the cult of douching the vagina with various chemicals. The advertisements of the vendors suggest that the vaginal douche should form part of the normal toilet. If this were desirable, Nature in her wisdom would have arranged, no doubt, for the urinary meatus to emerge in the anterior fornix. In conclusion I would plead for the substitution of "infertility" for "sterility." Although both words mean the same, infertility does not suggest the complete barrenness and lack of life associated to-day with "sterile." The diagnosis could be altered to sterility in the final summing-up after the menopause.

Intractable Major Epilepsy Controlled by "Epanutin" and "Luminal"

Dr. T. G. BAYLE (London, W.13) writes: A girl aged 16 first came under my care in January, 1946. She had a history of major epileptic attacks extending back four years. The attacks occurred during the day and numbered 7 to 10 a week. She had been treated with bromides and phenobarbitone without effect. A few years ago an attempt was made to control the attacks with "epanutin" (sodium diphenylhydantoinate). This was discontinued as the patient developed suicidal tendencies, and she was returned to "luminal" gr. 1 thrice daily. Her attacks continued to be 7 to 10 weekly, all occurring in the daytime. On consideration I decided that this was a case which might be benefited by treatment with epanutin and luminal, and I put her on epanutin gr. 1½ and luminal gr. 1/2 twice daily *after* food. She was free for a month but then had an attack at the menstrual period. After this attack in February, 1946, I put her on epanutin gr. 1½ thrice daily after food, with luminal gr. 1/2 twice daily—i.e., gr. 1/2 morning and gr. 1/2 at night. Since then she has remained free from all attacks. She was dull and apathetic whilst on luminal. Under present treatment she is bright and cheerful, has regained complete confidence, and has taken up an office job. She is entirely free from toxic and psychotic effects. This is an example of the type of case which may benefit by treatment with epanutin, which of course should not be instituted until more usual methods have failed. The control of the severe psychotic effects resulting from its combination with so small a dose of phenobarbitone as gr. 1/2 twice daily is worthy of note.

Bread Rations for Doctors

Dr. T. E. SEYMOUR LLOYD (Luton) writes: The Government's proposed scheme for bread and flour rationing overlooks the claim to an increased ration of a hard-working and vitally important section of the community—namely, the medical profession. In actual expenditure of energy, doctors by virtue of their long hours of work and mental strain undoubtedly exceed many classes of manual workers. If corroboration is required, reference may be made to the findings of the Spens Committee. The coming winter promises to be a time of great hardship for the community with its overcrowding due to housing shortage, insufficient warmth, and inadequate dietary, which in small families may approach starvation level. In consequence a deterioration in the nation's health with increased sickness is probable, which will further overtax the doctors, who, if they are to function efficiently as guardians of the health of the community, must be guaranteed a minimum diet consistent with their caloric requirements. I urge, therefore, that the medical profession should make strong representation to the Government that, on grounds of vital necessity, active members of the profession should, in view of the arduous nature of their work, receive the same bread and flour ration as manual workers.

Sir William Macewen

Mr. D. LIGAT, F.R.C.S., writes from St. Leonards-on-Sea: When I was dressing for the late Sir Alfred Pearce Gould, I asked him who he thought was the greatest surgeon of the century. He said without hesitation, "Kocher or Macewen, and I think Macewen just has it."

Corrigendum

The authors of "A Short Survey of Trilene in General Practice" (July 6, p. 10) wish to make the following corrections: (1) The heading to Table II should read: "Results with Trilene (All Cases)." (2) Table III should be headed: "Midwifery: Extended Analysis Table II (Selected)"; and "* Cases" should be substituted for the word "Cases" at the top of its second column. (3) The second line of the subheading "midwifery" on p. 12 should have been: "In *less than* 20% of cases complete amnesia followed its use."